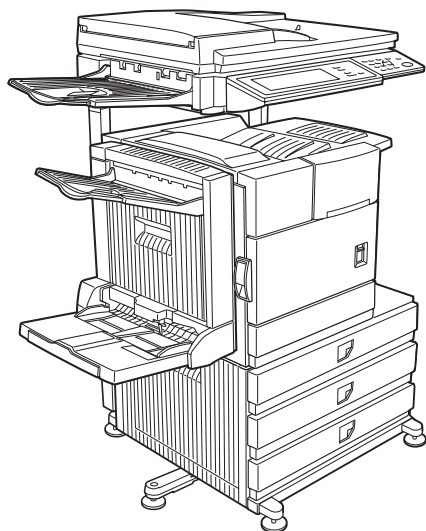


SHARP SERVICE MANUAL

CODE: 00ZMXM450/S1E



LASER PRINTER

MX-M350/M450 U
MODEL MX-M350/M450 N

CONTENTS

[1] GENERAL	1-1
[2] CONFIGURATION	2-1
[3] SPECIFICATIONS	3-1
[4] CONSUMABLE PARTS	4-1
[5] EXTERNAL VIEWS AND INTERNAL STRUCTURES	5-1
[6] UNPACKING AND INSTALLATION	6-1
[7] MAINTENANCE AND DETAILS OF EACH SECTION	7-1
[8] ADJUSTMENTS	8-1
[9] SIMULATIONS	9-1
[10] MACHINE OPERATION	10-1
[11] TROUBLE CODES	11-1
[12] ROM VERSION-UP METHOD	12-1
[13] ELECTRICAL SECTION	13-1

Parts marked with “△” are important for maintaining the safety of the set. Be sure to replace these parts with specified ones for maintaining the safety and performance of the set.

SHARP CORPORATION

This document has been published to be used
for after sales service only.
The contents are subject to change without notice.

CAUTION

This product is a class 1 laser product that complies with 21CFR 1040.10 and 1040.11 of the CDRH standard and IEC825. This means that this machine does not produce hazardous laser radiation. The use of controls, adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

This laser radiation is not a danger to the skin, but when an exact focusing of the laser beam is achieved on the eye's retina, there is the danger of spot damage to the retina.

The following cautions must be observed to avoid exposure of the laser beam to your eyes at the time of servicing.

- 1) When a problem in the laser optical unit has occurred, the whole optical unit must be exchanged as a unit, not as individual parts.
- 2) Do not look into the machine with the main switch turned on after removing the developer unit, toner cartridge, and drum cartridge.
- 3) Do not look into the laser beam exposure slit of the laser optical unit with the connector connected when removing and installing the optical system.
- 4) The middle frame contains the safety interlock switch.
Do not defeat the safety interlock by inserting wedges or other items into the switch slot.

Cautions on laser

Wave length	785 nm +10 nm -15 nm	At the production line, the output power of the scanner unit is adjusted to 0.4 MILLIWATT PLUS 8 % and is maintained constant by the operation of the Automatic Power Control (APC).
Pulse times	North America: 35 cpm model: (6.2 μ s $\pm$ 6.2 ns)/7 mm 45 cpm model: (4.8 μ s $\pm$ 4.8 ns)/7 mm Europe: 35 cpm model: (6.2 μ s $\pm$ 6.2 ns)/7 mm 45 cpm model: (4.8 μ s $\pm$ 4.8 ns)/7 mm	
Output power	0.2 mW - 0.4 mW	Caution This product contains a low power laser device. To ensure safety do not remove any cover or attempt to gain access to the inside of the product. Refer all servicing to qualified personnel.

For North America:

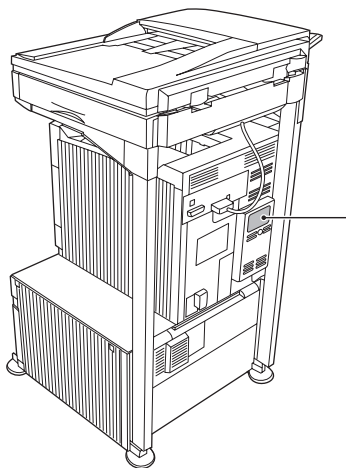
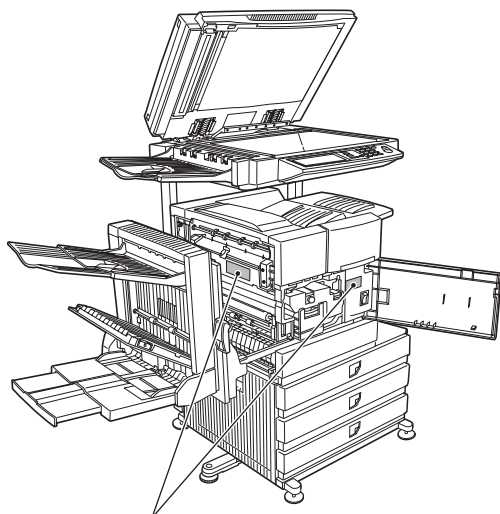
SAFETY PRECAUTIONS

This Digital Equipment is rated Class 1 and complies with 21 CFR 1040.10 and 1040.11 of the CDRH standards. This means that the equipment does not produce hazardous laser radiation. For your safety, observe the precautions below.

- Do not remove the cabinet, operation panel or any other covers.
- The equipment's exterior covers contain several safety interlock switches. Do not bypass any safety interlock by inserting wedges or other items into switch slots.

Caution

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.



Laserstrahl

CAUTION
VORSICHT
ADVARSEL
ADVERSEL
VARNING
VARO!

INVISIBLE LASER RADIATION WHEN OPEN AND INTERLOCKS DEFEATED.
AVOID EXPOSURE TO BEAM.
UNSICHTBARE LASERSTRAHLUNG WENN ABDECKUNG GEÖFFNET UND SICHERHEITSVERRIEGELUNG ÜBERBRÜCKT. NICHT DEM STRAHL AUSSETZEN.
USYNLIG LASERSTRÅLNING VED ÅBNING, NÅR SIKKERHEDSBRYDERE ER UDE AF FUNKTION. UNDGÅ UDSÆTTELSE FOR STRÅLNING.
USYNLIG LASERSTRÅLNING NÅR DEKSEL ÅPNES OG SIKKERHEDSLÅS BRYTES. UNNGÅ EKSPONERING FOR STRÅLEN.
OSYNLIG LASERSTRÅLNING NÅR DENNA DEL ÅR ÖPPNAD OCH SPÄRRAR AR UNKOPPLADE. STRÅLEN ÄR FARLIG. BETRÄKTA EJ STRÅLEN.
AVATTIEMISSÄ JA SUOJALUKITUS OHTETTÄESSÄ OLET ALTITINA NÄKYMÄTÖNÄ LASERISÄTEILYLLE. ÄLÄ NATTO SÄTEILEEN.

△ 注意 (サービスマン用)

カバーを開けてかつインターロックを無効にした場合にはレーザー光にさらされないようにしてください。

CLASS 1
LASER PRODUCT

LASER KLASSE 1

For Europe:

CLASS 1 LASER PRODUCT

LASER KLASSE 1

LUOKAN 1 LASERLAITE

KLASS 1 LASERAPPARAT

CAUTION

INVISIBLE LASER RADIATION WHEN OPEN INTERLOCKS DEFEATED. AVOID EXPOSURE TO BEAM.

VORSICHT

UNSICHTBARE LASERSTRAHLUNG WENN ABDECKUNG GEÖFFNET UND SICHERHEITSVERRIEGELUNG ÜBERBRÜCKT. NICHT DEM STRAHL AUSSETZEN.

ADVARSEL

USYNLIG LASERSTRÅLNING VED ÅBNING, NÅR SIKKERHEDSBRYDERE ER UDE AF FUNKTION. UNDGÅ UDSÆTTELSE FOR STRÅLNING.

VAROITUS!

LAITTEEN KÄYTTÄMINEN MUULLA KUIN TÄSSÄ KÄYTTÖOHJEESSA MAINITULLA TAVALLA SAATTAÄ ALTISTAA KÄYTTÄJÄN TURVALLISUUSLUOKAN 1 YLITTÄVÄLLE NÄKYMÄTÖMÄLLE LASERSÄTEILYLLE.

VARNING

OM APPARATEN ANVÄNDS PÅ ANNAT SÄTT ÄN I DENNA BRUKSANVISNING SPECIFICERATS, KAN ANVÄNDAREN UTSÄTTAS FÖR OSYNLIG LASERSTRÅLNING, SOM ÖVERSKRIDER GRÄNSEN FÖR LASERKLASS 1.

CONTENTS

[1] GENERAL

1. Different points of MX-M350N/350U series from AR-M355/M455 1-1
2. Note for servicing 1-1
 - A. Cautions for servicing 1-1

[2] CONFIGURATION

1. System configuration 2-1
 - A. Basic system 2-1
 - B. Option lineup 2-2
 - C. List of combination of peripheral devices 2-4

[3] SPECIFICATIONS

1. Basic Specification 3-1
 - A. Base Engine 3-1
 - B. Document Feeding Equipment 3-2
 - C. Output Equipment 3-2
2. Specific Function 3-2
 - A. Printer Function 3-2
 - B. Image send function 3-5
 - C. Copy function 3-7
3. B/W Scanner Module (DSPF) 3-8
4. Rack for Scanner 3-9

[4] CONSUMABLE PARTS

1. Supply system table 4-1
 - A. USA/Canada 4-1
 - B. European Subsidiary/East Europe/Russia/Australia/New Zealand 4-1
 - C. Taiwan (Aurora) 4-1
 - D. Asia 4-1
 - E. Middle East/Africa/Israel/Philippines 4-1
 - F. Hong Kong 4-1
 - G. China 4-1
2. Maintenance parts list 4-2
 - A. USA/Canada 4-2
 - B. Europe/Australia/New Zealand/Taiwan 4-2
 - C. Agency/Asia/Middle East/Africa/Latin America 4-3
 - D. Hong Kong 4-3
 - E. China 4-4
2. Production number identification 4-5
 - A. Drum cartridge 4-5
 - B. Toner cartridge 4-5
 - C. Developer cartridge 4-5
3. Environmental conditions 4-5
 - A. Operating conditions 4-5
 - B. Storage conditions 4-5

[5] EXTERNAL VIEWS AND INTERNAL STRUCTURES

1. Exterior 5-1
2. Interior 5-2
3. Operation panel 5-3
4. Job status screen (common to print, scan, fax and Internet fax) 5-4
5. BASE SCREEN 5-5
 - A. Condition settings screen 5-5
 - B. Address book screen 5-6
6. Cross sectional view 5-7
 - A. Scanner unit 5-7
 - B. Engine 5-7
7. Switch, Sensor 5-8
 - A. Scanner unit 5-8
 - B. Engine 5-8
8. PWB 5-9
 - A. Scanner unit 5-9
 - B. Engine 5-9
9. Motor, Clutch, Solenoid 5-10
 - A. Scanner unit 5-10
 - B. Engine 5-10

[6] UNPACKING AND INSTALLATION

1. Installing procedure flowchart 6-1
2. Note for installation place 6-2
3. Unpacking procedure 6-2
4. Unpacking and installation of the desk unit 6-3
 - A. AR-D28 6-3
 - B. AR-D27 6-5
 - C. AR-MU2 6-6
5. Unpacking and installation of the rack (AR-RK2) 6-9
6. Machine installing procedure 6-9
 - A. Setting related to process 6-9
 - B. Toner cartridge settings 6-10
 - C. Setting related to fusing 6-10
 - D. Paper setting 6-10
7. Unpacking and installation of the MX-EFX1 6-11
8. Automatic developer adjustment 6-12
9. Print test 6-12
10. Distortion adjustment 6-12
11. Attach the document scanning label 6-13
12. Adjuster installation and adjustment 6-13
13. Using the transport handle 6-13

[7] MAINTENANCE AND DETAILS OF EACH SECTION

[Maintenance System Table]	7-1
1. Engine section	7-1
2. Scanner / DSPF	7-2
3. Peripheral devices	7-3
[DETAILS OF EACH SECTION]	7-4
1. Process section	7-4
[OPC drum section]	7-6
[Transfer section]	7-11
[Developing section]	7-16
2. Fusing section	7-21
3. Paper feed section	7-26
4. Transport section/Paper exit reverse section	7-33
5. Laser scanner section	7-43
6. Scanner section	7-46
7. DSPF section	7-54
8. Operation panel section	7-62
9. Filter	7-67
10. Drive section	7-68
11. Power section	7-70
12. PWB	7-73
13. Fan motor	7-75

[8] ADJUSTMENTS

1. Process section	8-1
A. Doctor gap adjustment	8-1
B. MG roller main pole position adjustment	8-1
C. High voltage output adjustment	8-2
2. Image check, adjustment	8-3
A. Adjustments on the engine side	8-3
B. Adjustment on the scanner side	8-6
3. Scanner section	8-10
A. OC scan distortion adjustment (MB-B rail height adjustment)	8-10
B. Vertical image distortion balance adjustment (Copy lamp unit installing position adjustment)	8-11
C. Vertical image distortion balance adjustment (No. 2/3 mirror base unit installing and position adjustment)	8-11
D. Vertical (sub scanning direction) distortion adjustment [Winding pulley position adjustment]	8-11
E. Height adjustment of original detection light emitting unit	8-12
F. Original size detection photo sensor check.	8-12
G. Original size detection photo sensor adjustment	8-12
H. Image density adjustment	8-13
I. DSPF width detection adjustment	8-17

[9] SIMULATION

1. Outline and purpose	9-1
2. Code-type simulation	9-1
A. Operating procedures and operations	9-1
B. Simulation list	9-3
C. Details	9-7
3. Other related items	9-86

[10] MACHINE OPERATION

1. Acceptable originals	10-1
A. Size and weight of acceptable originals	10-1
B. Total number of originals that can be set in the document feeder tray	10-1
2. Standard original placement orientations	10-1
3. Automatic copy image rotation - rotation copying	10-1
4. Specifications of paper trays	10-2
A. Applicable plain paper	10-2
B. Applicable special paper	10-3
5. Printing onto envelopes	10-3
A. Fusing unit pressure adjusting levers	10-3
6. Printer setting	10-4
A. System settings	10-4
B. Printer software, firmware diagram	10-5
C. Configuration report (Test page)	10-6

[11] TROUBLE CODES

1. General	11-1
2. Trouble codes list	11-1
3. Details of trouble codes	11-3
4. Other related items	11-13

[12] ROM VERSION-UP

1. General	12-1
A. Version-up target ROM's	12-1
B. ROM version-up is required in the following cases:	12-1
2. Precautions	12-1
A. Relationship between each ROM and version-up	12-1
3. Necessary items for Flash ROM version-up	12-1
4. Flash ROM version-up method	12-1
A. Version-up procedure 1	12-1
B. Version-up procedure 2	12-2
C. Version-up procedure 3	12-3
D. Countermeasures against "Result: NG"	12-4
5. Turning OFF the power during the version-up procedure	12-4
6. Version-up procedure flowchart	12-4

[13] ELECTRICAL SECTION

1. Block diagram	13-1
A. System block diagram	13-1
2. Actual wiring chart	13-2
3. Signal name list	13-13

[1] GENERAL

1. Different points of MX-M350N/350U series from AR-M355/M455

- Adopted new operation panel with 8.9 inch LCD
- Addition of a blue screw to DV unit.
- Added firmware version-up using USB device by Sim 49-1.
- Eliminated parallel port

2. Note for servicing

Pictogram

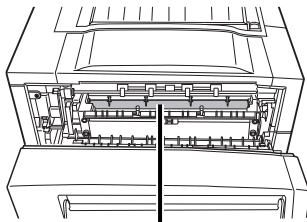
This Service Manual uses some pictographs to assure safe operation.

Please understand the meanings of pictographs before servicing.

CAUTION: If this CAUTION should be ignored, an injury or a damage to properties could result.

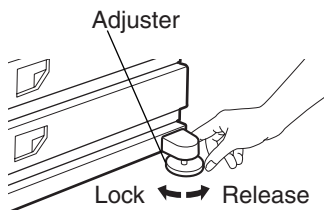
A. Cautions for servicing

- 1) Do not touch the photoconductive drum. Scratches or smudges on the drum will cause dirty printouts.
- 2) The fusing unit is extremely hot. Exercise care in this area.



Fusing unit

- 3) Do not look directly at the light source of the scanner module. Doing so may damage your eyes.
- 4) Five adjusters are provided on all optional stand/paper drawer units. These adjusters should be lowered until they contact the floor.



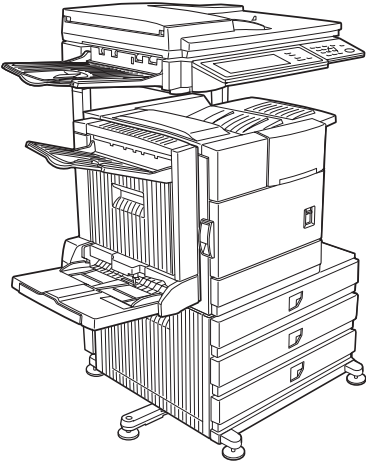
- 5) Do not make any modifications to this machine. Doing so may result in personal injury or damage to the machine.
- 6) Since this machine is heavy, it is recommended that it be moved by more than one person to prevent injury.
- 7) When connecting this machine to a computer, be sure to first turn both the computer and the machine off.

- 8) Do not print anything which is prohibited from printing by law. The following items are normally prohibited from printing by national law. Other items may be prohibited by local law.
 - Money
 - Stamps
 - Bonds
 - Stocks
 - Bank drafts
 - Checks
 - Passports
 - Driver's licenses
- 9) Do not throw toner or a toner cartridge into fire. Toner may be spattered, causing a burn.
- 10) Store toner or toner cartridges in a hard-to-reach place for children.

[2] CONFIGURATION

1. System configuration

A. Basic system

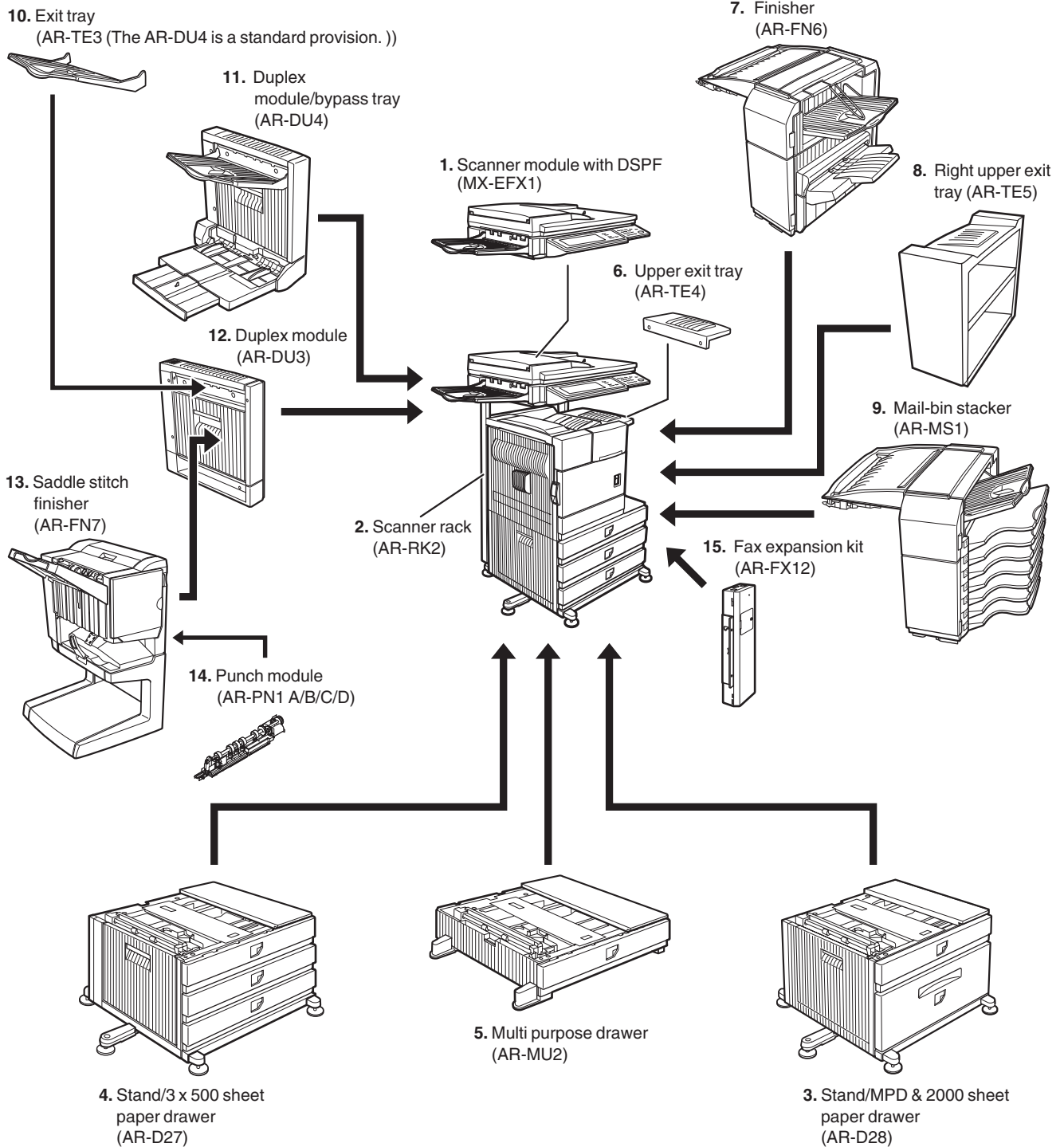
MX-M350N/M450N (Copier/Network printer model)	MX-M350U/M450U (Copier/Printer model)
	
Necessary options - Any one of the stand/MPD & 2000 sheet paper drawer (AR-D28), the stand/3 x 500 sheet paper drawer (AR-D27), or the multi purpose drawer (AR-MU2)* - Any one of the upper exit tray extension (AR-TE4), the finisher (AR-FN6), the mail-bin stacker (AR-MS1), the saddle stitch finisher (AR-FN7), or the right upper exit tray (AR-TE5) - Scanner module with DSPF (MX-EFX1) - Scanner rack (AR-RK2) - MX-M450U/M450N: Any one of the duplex module/bypass tray (AR-DU4), or the duplex module (AR-DU3)	

* To install the AR-MU2, the exclusive-use desk is required.

B. Option lineup

For combinations of options, refer to "C. List of combination of peripheral devices" described later.

(1) Major options



No.	Option item		Installing conditions
1	Scanner module with DSPF	MX-EFX1	
2	Scanner rack	AR-RK2	
3	Stand/MPD & 2000 sheet paper drawer	AR-D28	• Simultaneous installation with the large capacity paper feed desk (AR-D28) or the 3-stage paper feed desk (AR-D27) is inhibited.
4	Stand/3 x 500 sheet paper drawer	AR-D27	
5	Multi purpose drawer	AR-MU2	
6	Upper exit tray	AR-TE4	• Required when the finisher (AR-FN6) or the mail-bin stacker (AR-MS1) is not installed.
7	Finisher	AR-FN6	• Simultaneous installation with the saddle finisher (AR-FN7) is inhibited. • Any one of the multi paper drawer (AR-MU2), the stand/3 x 500 sheet paper drawer (AR-D27), or the stand/MPD & 2000 sheet paper drawer (AR-D28) is required.
8	Right upper exit tray	AR-TE5	• Simultaneous installation with the mail-bin stacker (AR-MS1) or the finisher (AR-FN6) is inhibited.
9	Mail-bin stacker	AR-MS1	• Any one of the multi paper drawer (AR-MU2), the stand/3 x 500 sheet paper drawer (AR-D27), or the stand/MPD & 2000 sheet paper drawer (AR-D28) is required.
10	Exit tray	AR-TE3	• Required when the duplex module (AR-DU3) is installed and the saddle stitch finisher (AR-FN7) is not installed.
11	Duplex module/bypass tray	AR-DU4	• Any one of the multi purpose drawer (AR-MU2), the stand/3 x 500 sheet paper drawer (AR-D27), or the stand/MPD & 2000 sheet paper drawer (AR-D28) is required. • The duplex module/bypass tray (AR-DU4) cannot be installed with the exit tray (AR-TE3) or the saddle stitch finisher (AR-FN7). • When the duplex module (AR-DU3) is installed, the exit tray (AR-TE3) or the saddle stitch finisher (AR-FN7) is required.
12	Duplex module	AR-DU3	
13	Saddle stitch finisher	AR-FN7	• Simultaneous installation with the finisher (AR-FN6) is inhibited. • The duplex module (AR-DU3) is required. • The stand/3 x 500 sheet paper drawer (AR-D27) or the stand/MPD & 2000 sheet paper drawer (AR-D28) is required.
14	Punch module	AR-PN1 A/B/C/D	• The saddle finisher (AR-FN7) is required.
15	Fax expansion kit	AR-FX12	• The stand/3 x 500 sheet paper drawer (AR-D27), or the stand/MPD & 2000 sheet paper drawer (AR-D28) is required.

(2) Other options

STD: Standard provision ○: Installable X: Not available

Option item			Main unit		Installing conditions
			MX-M350N/ M450N	MX-M350U/ M450U	
Function expansion options	Network expansion kit	MX-NBX2	X	○	with HDD
		MX-NBX3	STD	○	
	PS3 expansion kit	AR-PK6	○	○	
	Bar code font	AR-PF1	○	○	
	Flash ROM kit	AR-PF2	X	○	
	Network scanner expansion kit	MX-NSX1	○	○*1	
	Sharpdesk 1 license kit	MX-USX1	○*2	○*2	
	Sharpdesk 5 license kit	MX-USX5	○*2	○*2	
	Sharpdesk 10 license kit	MX-US10	○*2	○*2	
	Sharpdesk 50 license kit	MX-US50	○*2	○*2	
	Sharpdesk 100 license kit	MX-USA0	○*2	○*2	
	Application integration module	MX-AMX1	○*2	○*2 *3	
	Internet fax expansion kit	MX-FWX1	○*2	○*2 *3	
	Application communication module	MX-AMX2	○	○*3	
	External account module	MX-AMX3	○	○*3	
Data security	Data security kit (For a model with HDD installed)	MX-FRX6	○	○*3	Authentication version
		MX-FRX6U	○	○*3	Commercial version
	Data security kit (For a model without HDD installed)	MX-FRX7	X	○	Authentication version
		MX-FRX7U	X	○	Commercial version
FAX-related option	Fax memory (8 MB)	AR-MM9	○	○	For fax expansion kit (AR-FX12)

*1: The Network expansion kit (MX-NBX2/NBX3) is required.

*2: The Network scanner expansion kit (MX-NSX1) is required.

*3: The Network scanner expansion kit (with HDD) (MX-NBX3) is required.

C. List of combination of peripheral devices

As shown in the table below, some other peripheral devices (B) may be needed for installation of a peripheral device (A) and some peripheral devices cannot be installed together.

			B																																	
A	Related to paper feed unit		Multi purpose drawer	Stand/3 x 500 sheet paper drawer	Stand/MPD & 2000 sheet	Duplex module/bypass tray	Duplex module	Scanner module with DSPF	Saddle stitch finisher	Finisher	Mail-bin stacker	Exit tray	Upper exit tray	Right upper exit tray	Punch unit	Network expansion kit	Network expansion kit (with HDD)	PS3 expansion kit	Network scanner expansion kit	Facsimile expansion kit	Fax memory (8 MB)	Data security kit (For a model with HDD installed)	Data security kit (For a model without HDD installed)	Bar code font	Flash ROM kit	Internet fax expansion kit	Sharpdesk 1 license kit	Sharpdesk 5 license kit	Sharpdesk 10 license kit	Sharpdesk 50 license kit	Sharpdesk 100 license kit	Application integration module	Application communication module	External account module		
	Multi purpose drawer	AR-MU2	—	X	X																															
	Stand/3 x 500 sheet paper drawer	AR-D27	X	—	X																															
	Stand/MPD & 2000 sheet paper drawer	AR-D28	X	X	—																															
	Duplex module/bypass tray	AR-DU4	○ ^{*1}		—				X						X																					
	Duplex module	AR-DU3	○ ^{*1}			—																														
	Scanner module with DSPF	MX-EFX1	○ ^{*1}				—																													
	Output units																																			
	Saddle stitch finisher	AR-FN7	X	○ ^{*1}	X	○		—	X		X																									
	Finisher	AR-FN6	○ ^{*1}					X	—	X		X		X		X																				
	Mail-bin stacker	AR-MS1	○ ^{*1}					X	X	—	X		X																							
	Exit tray ^{*2}	AR-TE3				○ ^{*1}		X	X	X	—				X																					
	Upper exit tray	AR-TE4						X	X		—																									
	Right upper exit tray	AR-TE5													—																					
	Punch unit	AR-PN1	X	○ ^{*1}	X	○		○	X		X		X			—																				
	Related to extension of functions and others																																			
	Network expansion kit ^{*3}	MX-NBX2															—	X																		
	Network expansion kit (with HDD) ^{*3}	MX-NBX3															X	—																		
	PS3 expansion kit	AR-PK6																	—																	
	Network scanner expansion kit	MX-NSX1	X	○ ^{*1}				○									○ ^{*1}		—																	
	Facsimile expansion kit	AR-FX12	X	○ ^{*1}				○												—																
	Fax memory (8 MB)	AR-MM9	X	○ ^{*1}																	—	○														
	Data security kit (For a model with HDD installed)	MX-FRX6/ MX-FRX6U	X	○ ^{*1}				○															—	X												
	Data security kit (For a model without HDD installed)	MX-FRX7/ MX-FRX7U	X	○ ^{*1}																			X	—												
	Bar code font	AR-PF1																							—											
	Flash ROM kit	AR-PF2																								—										
	Internet fax expansion kit	MX-FWX1															X	○		○							—									
	Sharpdesk 1 license kit	MX-USX1																		○								—								
	Sharpdesk 5 license kit	MX-USX5																		○									—							
	Sharpdesk 10 license kit	MX-US10																		○										—						
	Sharpdesk 50 license kit	MX-US50																		○											—					
	Sharpdesk 100 license kit	MX-USA0																		○												—				
	Application integration module	MX-AMX1															X	○		○														—		
	Application communication module	MX-AMX2															X	○																	—	
	External account module	MX-AMX3															X	○																	—	

○ = Must be installed together.

X = Cannot be installed together.

○^{*1} = Any of the units must be installed together.

*2 = The AR-DU4 is a standard provision.

*3 = Installable to the MX-M350U/M450U. The MX-NBX3 is a standard provision for the MX-M350N/M450N.

[3] SPECIFICATIONS

1. Basic Specification

A. Base Engine

(1) Form

Console type

(2) Engine speed

Paper size	MX-M350U/ M350N	MX-M450U/ M450N
A4, 8.5" x 11"	35ppm (31ppm*)	45ppm (40ppm*)
A4R, 8.5" x 11"R	25ppm	30ppm
A5R/5.5" x 8.5"R, Invoice-R	35ppm	45ppm
B5	35ppm	45ppm
B5R, Executive-R	25ppm	30ppm
B4/8.5" x 14"	20ppm	22ppm
A3/11" x 17"	17ppm	20ppm
8K	17ppm	20ppm
16K	35ppm	45ppm

* Paper feed from Manual bypass tray

(3) Engine composition

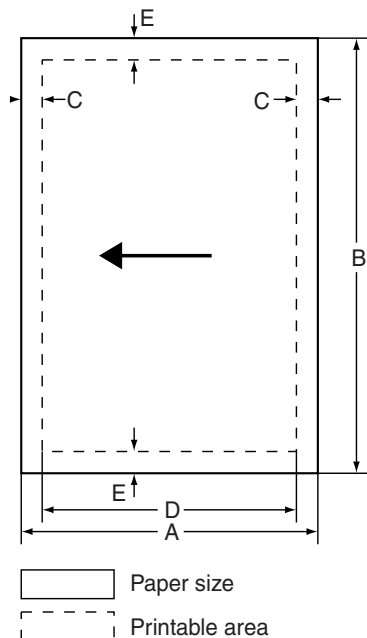
Photoconductor type	OPC (diameter of photoconductor : ϕ 30mm)
Record method	Electro-photograph (laser)
Development method	Dry-type dual-component magnetic brush development
Charge method	Charged saw-tooth method
Transfer method	Transfer roller
Cleaning method	Counter blade
Fusing method	Heat roller

(4) Engine resolution

Resolution	Read: 600dpi x 600dpi Write: 600dpi x 600dpi
Smoothing	Write: 1200dpi equivalent x 600dpi
Gradation	Write: 2 levels

(5) Printable area

The print area of this product is shown below.



If a printer driver for Windows or Macintosh is used for printing, the printable area will be smaller. The actual printable area depends on the printer driver to be used.

(in mm)

Paper size	A	B	C	D	E
A3	297	420	4	289	4
B4	257	364	4	242	4
A4	210	297	4	202	4
B5	182	257	4	168	4
A5	148	210	4	140	4
Japanese postcard	100	148	4	92	4
Ledger	279	432	4	271	4
Legal	216	356	4	208	4
Foolscap	216	330	4	208	4
Letter	216	279	4	208	4
Executive	184	267	4	183	4
Invoice	140	216	4	132	4
Com-10 (envelope)	105	241	4	97	4
C5 (envelope)	162	229	4	154	4
Monarch (envelope)	98	191	4	90	4
DL (envelope)	110	220	4	102	4
ISO B5 (envelope)	176	250	4	168	4

(6) Warm-up

Warm-up time	less than 80 seconds
Pre-heat requirement	Required
Jam recovery time	Target: about 30 seconds (Under standard condition of 60 seconds left after side cover opening, polygon motor halt)

(7) Power source

Voltage current	100V system 100-127V, 12A	200V system 220-240V, 8A
Frequency	50/60Hz	
Power cord	Inlet type	

(8) Power consumption

Max. Power consumption	100V	1440W
	200V	1850W

(9) Energy Star benchmark

	MX-M350U/M350N	MX-M450U/M450N
Low power mode	184.75W	223.25W
Recovery time from low power mode	Max. 30 sec.	Max. 30 sec.
Sleep mode	Less than 80W	Less than 95W
Transition time to sleep mode	60 min.	60 min.

(10) Noise

At working	less than 6.8dB
At waiting mode	less than 5.0dB

* Showing noise benchmark in each model as a whole system.

(11) Dimensions

External dimensions (W x D x H)	33-1/16" x 26-11/64" x 44-23/64" (840 mm x 665 mm x 1127 mm) (including automatic document feeder)
Occupied space dimensions (W x D)	38-3/16" x 26-11/64" (970 x 665 mm) (Include automatic document feeder)
Weight	Engine: Approx. 85.8 lb (38.9 kg) Desk: Approx. 72.6 lb (32.9 kg) Rack: Approx. 16 lb (7.4 kg) DSPF: Approx. 46 lb (21 kg)

B. Document Feeding Equipment

(1) One-drawer tray (included in the base engine)

Paper feed method	One-drawer tray
Sizes to be fed	A4, B5, 8.5" x 11"
Paper capacity	500 sheets (at 80g/m ²)
Media available for paper feeding	Plain paper 60 - 105g/m ² , 16 - 28lbs
Paper type	Normal, recycled, pre-printed, pre-punched, color, letter head
Paper size switching	To be switched by user (paper size to be entered from the operation panel).
Dehumidification heater	Not available
Balance detection	Provided (paper empty and 3 steps)
Default size setting	100V system 8.5" x 11"
Mounting/demounting of the tray	Provided

C. Output Equipment

(1) Face-down Exit Tray (included in the base engine)

Output position/method	Face-down output at the upper side of main unit
Output paper capacity	400 sheets (80g/m ² sheet)
Output paper size	A3, B4, A4, A4R, B5, B5R, A5R 11" x 17", 8.5" x 14", 8.5" x 13", 8.5" x 11", 8.5" x 11"R, 5.5" x 8.5"R Executive, Japanese post card, Monarch (98 x 191), 8K, 16K, 16KR Com-10 (105 x 241), DL (110 x 220), C5 (162 x 229), ISO B5 (176 x 250)
Spec of media for paper output	Tracing paper: 52 ~ 59g/m ² / 14 ~ 15lbs Plain paper: 60 ~ 128g/m ² / 16 ~ 34lbs Index paper: 176g/m ² / 47lbs Cover paper: 205g/m ² / 54 ~ 55lbs Transparency film
Remaining paper detection	Not available
Exit tray full detection	Provided

2. Specific Function

A. Printer Function

(1) Platform

IBM PC/AT (Include compatible machine) Macintosh

(2) Support OS

Custom PS	Windows 98/Me Windows NT 4.0 (Service Pack5 or later) Windows 2000 Windows Server 2003 Windows XP Windows Vista
Custom PCL5e/6(XL)	Windows 98/Me Windows NT 4.0 (Service Pack5 or later) Windows 2000 Windows Server 2003 Windows XP Windows Vista
PPD	Windows 98/Me Windows NT 4.0 (Service Pack5 or later) Windows 2000 Windows Server 2003 Windows XP Windows Vista Mac OS 9.0 - 9.2.2, X 10.1.5, X 10.2.8, X 10.3.9, X 10.4 - 10.4.8
GPD	Windows Server 2003 x64 Windows XP x64 Windows Vista x64

(3) PDL emulation

PCL6 compatible, PCL5e compatible, PostScript 3 compatible
--

(4) Windows driver function

a. General

Function	PCL5e	PCL6	PS	PPD file *1 (for Windows XP)
Copies	1-999			
Orientation	Portrait Landscape			Portrait Landscape-A Landscape-B (*2)
Duplex	1-sided 2-sided (Left / top / right binding)			1-sided 2-sided (Long / short binding) (*2)
Booklet	Invoice on Letter Letter on Ledger A5 on A4 A4 on A3 B5 on B4 Letter on Letter Ledger on Ledger A4 on A4 A3 on A3 B4 on B4			Yes (2up booklet only) (*2)
Binding edge	Left / top / right			—
N-up	2/4/6/8/9/16			2 / 4 / 6 / 9 / 16 (*2)
N-up order	Z / Reversed Z / N / Reversed N			Z (*2)
N-up border	Yes / No			Always Yes (*2)

*1: For printing, PS driver bundled with the Windows is required.

*2: Since the function is of PS driver bundled with Windows, specification may vary according to the OS.

b. Paper Input

Function	PCL5e	PCL6	PS	PPD file *1 (for Windows XP)
Paper size	A3 / B4 / A4 / B5 / A5 / Ledger / Legal / Foolscape / Letter / Executive /Invoice/8k / 16k /COM10/C5/ Monarch/DL			
Paper type	Plain Letter Head Pre-Print Pre-Punch Recycle Color Label Heavy Paper Transparency Envelope			
Custom paper type	7 type			—
Source selection	Automatic Tray 1/2/3/4 Bypass-tray			
Cover	Yes/No User can select from 1-sided/2-sided/ No print			—
Insert page	Yes/No User can select from 1-sided/2-sided/ No print			—
Transparency inserts	No Yes (Blank) Yes (Printed)			—

*1: For printing, PS driver bundled with the Windows is required.

c. Paper Output

Function	PCL5e	PCL6	PS	PPD file *1 (for Windows XP)
Output tray selection	Center tray			
	Finisher • Top tray • Offset tray			
	Saddle Stitch Finisher • Offset tray			
	Mailbin stacker • Mailbin top tray • Mailbin (1-7)			
	Duplex module • Left tray			
Staple	Finisher • No staple • 1 staple • 2 staples			
	Saddle Stitch Finisher • No staple • 1 staple • 2 staples			Saddle Stitch Finisher • No staple • 1 staple • 2 staples
Offset cancel	Yes/No			

*1: For printing, PS driver bundled with the Windows is required.

d. Graphic

Function	PCL5e	PCL6	PS	PPD file *1 (for Windows XP)
Resolution setting	600/300 dpi		600dpi	600dpi
Halftone setting	—	No	Screen frequency 8.0 to 360.0 in 0.1 steps Screen angle 0.0 to 360.0 in 0.1 steps	—
Graphics mode	Raster HP-GL2	Raster Vector	—	—
Smoothing	Yes/No			
Toner save	Yes / No			
Photo enhancement	—	Yes/No	—	—
Negative image	—	—	Yes / No	
Mirror image	—	—	Horizontal Vertical	Horizontal (*2)
Zoom	—	—	25-400% (XY zoom)	1-1000% (*2)
Fit to page	Yes / No			—

*1: For printing, PS driver bundled with the Windows is required.

*2: Since the function is of PS driver bundled with Windows, specification may vary according to the OS.

e. Font

Function	PCL5e	PCL6	PS	PPD file *1 (for Windows XP)
Download font	Bitmap TrueType		Bitmap Type1 TrueType	Auto Outline Bitmap Native TrueType (*2)

*1: For printing, PS driver bundled with the Windows is required.

*2: Since the function is of PS driver bundled with Windows, specification may vary according to the OS.

f. Others

Function	PCL5e	PCL6	PS	PPD file *1 (for Windows XP)
Configuration setting	Yes			
Watermark	Yes			Yes (functionality is limited)
Line width setting	—			
Form overlay	Yes			—
Print hold	Yes			—
Confidential print	Yes			—
Sample print	Yes			—
Print accounting	Yes			—
Quick sets	Yes			—
Auto configuration	Yes			—
Job end notification	Yes			—
Tandem print	Yes			
Carbon print	Yes			—
Multi-enlargement	—			
XY zoom	—		Yes	—
Cover insert + pamphlet	Yes			—

Function	PCL5e	PCL6	PS	PPD file *1 (for Windows XP)
Document filing	Yes (MX-M350U/M450U: The MX-NBX3 is required.)			—

*1: For printing, PS driver bundled with the Windows is required.

(5) Macintosh driver functions

a. General

Function	Macintosh PPD file (for Mac OS X ver10.2.8)
Copies	1-999
Orientation	Portrait Landscape-A Landscape-B (*1)
Duplex	1-sided 2-sided Pamphlet (Right /left /top binding)
Booklet	Yes
N-up	2/4/6/9/16 (*1)
N-up order	Z / reversed Z / N / reversed N (*1)
N-up border	None / Single hairline / Single thin line / Double hairline / Double thin line (*1)

*1: Since the function is of PS driver bundled with Macintosh, specification may vary according to the OS.

b. Paper input

Function	Macintosh PPD file (for Mac OS X ver10.2.8)
Paper size	A3 / B4 / A4 / B5 / A5 / Japanese Postcard / Ledger / Legal / Foolscap / Letter / Executive / Invoice/ 8K / 16K/ COM10/C5/Monarch/DL
Paper type	Plain / Letter Head / Pre-Print / Pre-Punch / Recycle / Color / Label / Heavy Paper / Transparency / Envelope
Custom paper type	7
Source selection	Automatic Tray 1/2/3/4 Bypass-tray
Different 1st page	Yes / No (*1)
Cover / insert page	— (On OS9, user can select from: No/First Page/Last Page) (*1)
Transparency inserts	No Yes (Blank) Yes (Printed)

*1: Since the function is of PS driver bundled with Macintosh, specification may vary according to the OS.

c. Paper output

Function	Macintosh PPD file (for Mac OS X ver10.2.8)
Output tray selection	Center tray Finisher • Top tray • Offset tray Saddle Stitch Finisher • Offset tray Mailbin stacker • Mailbin top tray • Mailbin (1-7) Duplex module • Left tray
Staple	Finisher • No staple • 1 staple • 2 staples Saddle Stitch Finisher • No staple • 1 staple • 2 staples
Offset	Yes/No

d. Graphic

Function	Macintosh PPD file (for Mac OS X ver10.2.8)
Resolution setting	600dpi
Halftone setting	—
Graphics mode	—
Smoothing	Yes/No
Toner save	Yes / No
Photo enhancement	Yes/No
Negative image	—
Mirror image	—
Zoom	1-100000 (*1)
Fit to page	—

*1: Since the function is of PS driver bundled with Macintosh, specification may vary according to the OS.

e. Font

Function	Macintosh PPD file (for Mac OS X ver10.2.8)
Download font	— (Selectable only on MacOS9.x.x - LaserWriter) (*1)

f. Others

Function	Macintosh PPD file (for Mac OS X ver10.2.8)
Configuration setting	Yes
Watermark	Yes
Form overlay	—
Print hold	Yes
Confidential print	Yes (PIN selection)
Sample print	Yes
Print accounting	Yes
Quick sets	—
Auto configuration	— (OS9: Yes)
Job end notification	—
Tandem print	Yes
Carbon print	—
Multi-enlargement	—
XY zoom	—
Cover insert + pamphlet	—
Document filing	Yes (*1) (MX-M350U/M450U: The MX-NBX3 is required.)

*1: Since the function is of PS driver bundled with Macintosh, specification may vary according to the OS.

(6) Compatibility

PCL5e compatibility	PCL5e is compatible with HP LaserJet 4050. Small margin difference, rendering difference by different font family, default and transfer function difference is not to be included in the compatibility.
PCL6 compatibility	PCL6 is compatible with HP LaserJet 4050. Small margin difference, rendering difference by different font family, default and transfer function difference is not to be included in the compatibility.
PostScript Compatibility	Must be compatible with Adobe PostScript. Small margin difference, rendering difference by different font family, default and transfer function difference is not to be included in the compatibility.

B. Image send function

(1) Mode

Scanner	Scan to e-mail Scan to Desktop (Scan data send which is not dependent on IP addresses under DHCP environment) Scan to FTP Scan to Folder (SMB) Scan to e-mail with Meta Scan to Desktop with Meta Scan to FTP with Meta Scan to SMB with Meta
Fax	Fax Fax to e-mail (Inbound Routing) Fax to FTP/Desktop/SMB/e-mail (Document Admin)*
Internet Fax	Internet Fax (Full mode support) Internet Fax to e-mail (Inbound Routing) (HDD) Internet Fax to FTP/Desktop/SMB/e-mail (Document Admin)*

* PC-FAX/PC-Internet-Fax is allowed.

(2) Support system

Mode	Scanner	Internet Fax	FAX
Supported server/protocol	SMTP FTP (TCP/IP) SMB	POP server SMTP server ESMTP server	–

(3) Support image

Mode	Scanner	Internet Fax	FAX
File format	TIFF, PDF	TIFF-FX (TIFF-F)	–
Compression method	Uncompressed, G3 (1-dimension) = MH (Modified Huffman) G4 = MMR (Modified MR)	MH, MMR	MH, MR, MMR, JBIG

(4) Image process

Mode	Scanner	Internet Fax	FAX
Half tone reproduction	Equivalent to 256 levels		
Exposure adjustment	Auto + 5 steps		
Quality selection	Half-tone ON/OFF (It's not effective for the following resolution with *.)		
Resolution (Varies with the file type/ transmission method)	200 x 200dpi	Normal *	Normal (203.2 x 97.8dpi)*
	200 x 200dpi	Small letter	Small letter (203.2 x 195.6dpi)
	300 x 300dpi	Fine	Fine (203.2 x 391dpi)
	400 x 400dpi	Extra fine	Extra fine (406.4 x 391dpi)
	600 x 600dpi	600 x 600dpi	–

(5) Specified destination

Mode	Scanner	Internet Fax	FAX
Specified destination	Specifying by one-touch or group, manual destination entry Entry from soft keyboard. (Scanner/Internet Fax) Entry from 10-key. (Fax) Selection from LDAP server Resend Quick		
One-touch keys (Max. number of keys to be stored.)	Max. 999 (500 ^{*1}) destinations In this, FTP, Desktop, and SMB are 200 (100 ^{*1}) destinations.		
Number of Group (1 key) address registration	Max. 500 (300 ^{*1}) destinations		
Program	Yes (8 programs)		
Manual destination entry	Entry from soft keyboard.	Input via the numeric keys, # key and * key.	
Chain dialing	—	Up to 64-digit with pause key.	
Resend	Call up nearest 1 addresse which are specified as a single destination.		
Speed dialing (quick key)	This is used to recall address control number by using numeric keys.		
CC / BCC sending	Yes	—	
Subject	Selective/direct entry from the list	—	
File name	Selective/direct entry from the list	—	
Sender name	—	(1 default address fixed as sender name)	
Transmitter's name	Yes (Selective/direct entry from the list / selection from LDAP server)	No	

*1: Model without HDD installed

(6) Specified multiple destinations

Mode	Scanner	Internet Fax	FAX
Specified destination	Specifying by one-touch or group, manual destination entry.		
Max. number of Manual destination entry*	Total of 5000 (100* ¹) destinations including group and relay broadcast.		
Sequential broadcasting	Yes (E-mail only. It is not available for FTP/Desktop/SMB.)		Yes
Simultaneous FAX transmission	–		Yes

*1: Model without HDD installed

- * Manual destination entry: Entry other than One-touch, using numeric keys or soft keyboard.
- * In the case of broadcast transmission including fax destination, the resolution level for fax mode is applied.
- * In the case of broadcast transmission with Internet Fax and Scanner destinations, the resolution level of Internet Fax mode is applied.
- * In the case of broadcast transmission, the compression format set with the system settings is applied.

(7) Functions

Mode	Scanner	Internet Fax	FAX
Transmit function			
Memory transmit	– Data is sent by memory transmit when upper limit is set.	Yes	
On-hook	–		Yes
Quick online transmit	–		Yes
Manual transmit	–		At on-hook only
Auto reduction transmit	–		Yes: A3 → B4, A3 → A4, B4 → A4
Rotation transmit	Yes (Manual)	Yes (Auto)	
Scaling transmit	Yes (Scaling from regular size to regular size only. Some functions does not allow rotation transmit)		
Re-call mode	Error	–	Yes
	Busy	–	Yes
	No. of times/interval is set via system settings.		
Book original transmit	Yes		
Long length original transmit	Yes	Yes	Yes
	Max. 800mm		
Specified pages per file	Yes	–	
Maximum number of send data	Yes		–
Sender name	Max. 999 (500 ^{*1}) destinations		
Address Confirmation Function (Prevention of mis-send)	–		Yes (Soft SW)
Receive function			
Auto receive	–		Yes
Manual receive	–		Yes
Memory receive	–		Yes
Reduction receive for standard size	–		Yes
Rotation receive	–		Yes
Divided receive	–	Yes: To be defined by system settings	
Duplex receive	–	Yes: To be defined by system settings	
2 in 1 receive	–		
Address/Domain-specified reception is enabled.	–	Yes (50 address)	–
Address/Domain-specified reception is disabled.	–	Yes (50 address)	–
Reception refusal setting of Specific number	–		Yes (30 destinations)
External phone connection	–		Yes
Transfer function at output trouble	–		Yes
Auto startup mode	–		Yes

*1: Model without HDD installed

Mode		Scanner	Internet Fax	FAX
Special function	Time setting	Yes		
	Transmit request	—		Yes
	Remote transmit	—		Yes
	Cover function	—		No
	Print at sender	—	Yes	—
	Page division	Yes		
	Confidential (machine at the other end)	—		Yes (F code method)
	Transmit broadcast direction	—		Yes (F code method)
	Edge erase	Yes		
	Center erase	Yes		
	2 in 1	Yes		
Card shot	Yes			
Report/ List function	Transmit/receive record	Yes		
	Transmit/receive result	No	Yes	
	Address/phone directory list	Yes		
	Group list	Yes		
	Sender list	Print administrator address.	No Described in the system settings list	
	Program list	Yes		
	Memory box list	—		Yes (FAX mode only)
	Memory clear notice list	— (It's possible that this is output in case of errors.)		
	Rejected Number List	—		Yes
	Receiving setting address list	—	Yes	—
	List of Transfer tables to E-mail	Yes (HDD)		
	List of transfer tables to administrator	Yes		
	Web setting list	Yes		
	Others	PC-facsimile transmission	—	PC-Internet Fax

(8) Transmission method

Mode	FAX
Transmission time	2 seconds (level: Super G3/JBIG) 6 seconds (G3 ECM)
Modem speed	33.6kbps → 2.4kbps automatic fallback
Intercommunication	Super G3/G3
Communication line	General telephone line (PSTN), Private branch exchange(PBX), FAX line R-key for PBX setting: Germany, France
Number of maximum communication line	1 line only
ECM	Yes

(9) Record size

Mode	Internet Fax	FAX
Max. record width	293mm	
Record size	A3-A5, 11" x 17" - 5.5" x 8.5"	

(10) F code transmission

Mode	FAX
Sub address	Yes
Passcode	Yes

(11) Registration-related settings

Item	Registerable Number
Individual/ Group	999 (Up to 500 can be registered for 1 group.)
Program	8
Memory box	Total 100 of Polling Memory/ Confidential/Relay Broadcast
Scheduled send job	94 (Manual transmit: 1, Manual forwarding: 1, Manual Internet Fax forwarding: 1, Inbound Routing and Document Admin : total 3 Total: 100)
Own number and Name Set	Internet Fax: 1 Fax: 1
User list (Reply-to List)	999 (500*1)
Inbound Routing List	50
Inbound routing addresses	1000
Sender Number/Address Registration (Inbound Routing)	500
Subject (Send Settings)	30
File name (Send Settings)	30
Metadata Set List	10
Rejected Number	50
Rejected Address	50 (30*1)
Polling permitted Number	10

*1: Model without HDD installed

(12) Telephone Functions

Mode	Fax
Speaker	Yes
Hold	No
Setting of pause time	Yes (1-15 seconds)
Telephone transmission during power outage	No (External telephone transmission allowed)
Tone pulse switching	Existence of settings for 10/ 20/TONE/Auto Select and their default values depends on destinations.

(13) Others

Mode	Scanner	Internet Fax	Fax
PC- FAX	—		Yes
PC-Internet Fax	—	Yes	---
FAST	—	—	Yes (SEC only)
Trial mode	Yes (Included meta data. These can be set up separately.)	No	—
Linearized PDF	Support by Net Scan Tool	—	

C. Copy function

(1) Copy Speed

	MX-M350U/M350N			MX-M450U/M450N		
	Actual	Reduction	Enlargement	Actual	Reduction	Enlargement
A4, 8.5" x 11"	35	35	35	45	45	45
A4R, 8.5" x 11"R	25	25	25	30	30	30
A5R, 5.5" x 8.5"R, Invoice-R	35	35	35	45	45	45
B5	35	35	35	45	45	45
B5R, Executive-R	25	25	25	30	30	30
B4, 8.5" x 14"	20	20	20	22	22	22
A3, 11" x 17"	17	17	17	20	20	20
Extra, Envelope	17	17	17	20	20	20

* Figures in reduction/enlargement are represented by those at the ratio to show slowest speed

(2) First copy time

Conditions: A4 or 8.5"x11" from front tray of PPC, with polygon motor running.

	MX-M350U/M350N	MX-M450U/M450N
Document glass *1	Less than 4.9 seconds	Less than 4.4 seconds
DSPF	Less than 6.0 seconds	Less than 5.3 seconds

*1: During OC mode

(3) Job speed

	MX-M350U/M350N	MX-M450U/M450N
S → S *1	33 cpm (94%)	42 cpm (93%)
S → D *2	32 cpm (91%)	40 cpm (88%)
D → D *3	32 cpm (91%)	40 cpm (88%)

*1: S → S : A4 / 8.5" x 11" original 5 sheets copy 5sets

*2: S → D : A4 / 8.5" x 11" original 10 sheets copy 5sets

*3: D → D : A4 / 8.5" x 11" original 5 sheets (10 pages) copy 5sets

(4) Continuous copy

Max. multiple number	999 pages
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(5) Copy Ratio

Copy ratio	AB series : 25%, 50%, 70%, 81%, 86%, 100%, 115%, 122%, 141%, 200%, 400% Inch series : 25%, 50%, 64%, 77%, 100%, 121%, 129%, 200%, 400%
Zoom	25 - 400% 25 - 200% (Copy from DSPF)
Independent scaling	4

(6) Exposure/Copy Quality Process

Exposure mode	Binary: Text(auto/manual), Text/photo, Photo, Auto 256 levels: Not provided
Manual steps	9 steps
Toner save mode	Yes (Except for U.K.), Default: OFF

(7) Copy Function

Function	APS	Yes
	AMS	Yes
	XY zoom	Yes
	Paper type select	Yes (By type setting)
	Auto tray switching	Yes
	Rotation copy	Yes
	Electronic sort	Yes
	Rotation sort	Yes (Europe, Australia, Agency)
	Reserved copy	Yes (99 destinations)
	Recall/register of program	Yes (10 destinations)
	Document filing	Yes (MX-M350U/M450U: The MX-NBX3 is required.)
	Preheat function	Yes (To be set up by the system settings)
	Auto power shut-off function	Yes (To be set up by the system settings)
	Account control	Yes (500 accounts)
	Process control	Yes
	Tandem copy	Yes (Network interface's being unnecessary)
	Book copy	Yes
	Irregular original size input	Yes
	Irregular paper size input	Yes (Tray 2/Manual tray)
	Mixed originals feeder	Yes (MIX only)
Special function	Margin shift	Yes (Left/Right)
	Edge erase/Center erase	Yes (Center/Edge/Center + Edge)
	Dual page copying	Yes
	Covers/Inserts/Tab paper insertion	Yes
	Transparency insert	Yes
	Multi shot (Nin1)	Yes (2 in 1 / 4 in 1) (Centering: Yes)
	Card shot	Yes (Centering: Yes)
	Pamphlet copy	Yes (Centering: Yes)
	2-sided copy orientation change	Yes
	Job build	HDD model: Max.10,000 sheets HDD uninstallation model is decided by memory retention. Scaling, Density and Paper for each bunch are possible to be changed.
	Negative image	Yes
	Shading	No
	Black-white inversion	Yes (Except UK)
	Mirror image	Yes
	Multi-page enlargement	No
	Repeat	No
	Date stamp	Yes
	Stamp	Yes
	Character stamp	Yes
	Page stamp	Yes

Yes: Standard Function

No: Not available

3. B/W Scanner Module (DSPF)

(1) Form

Scanner (Document glass) / DSPF standard
Operation panel integral type
(common hardware for all the destinations)

(2) Resolution / Gradation

Reading resolution (dpi)					
Copy mode					
Magnification	25 - 99	100	101 - 171 (DSPF/ SPF (high quality): 101 - 200))	172 - 400	-
OC	600x600	600x600	600x600	600x1200	-
OC (High speed): Text/Auto	600x600	600x600	600x600	600x1200	-
OC (High speed): Others	600x600	600x300	600x600	600x1200	-
DSPF/SPF (standard)	600x300	600x300	600x600	-	-
DSPF/SPF (high quality)	600x600	600x600	600x600	-	-
Input and transmitting resolution (dpi)					
FAX transmit mode and scanner/fax multicasting mode					
Selection mode	Standard	Fine	Super fine	Ultra fine	600dpi sending
Input resolution: OC	600x600	600x600	600x600	600x600	-
Input resolution: DSPF	600x300	600x300	600x300	600x300	-
Transmitting resolution	203.2x97.8	203.2x195.6	203.2x391	406.4x391	-
Internet-FAX					
Transmitting resolution	200x100	200x200	200x400	400x400	600x600
Scanner mode					
Selection mode	Standard	Fine	Super fine	Ultra fine	-
Input resolution: OC	600x391.2	600x391.2	600x391.2	600x600	-
Input resolution: DSPF	600x300	600x300	600x300	600x300	-
Transmitting resolution	200x200	300x300	400x400	600x600	-
Reading level					
256 tones					
Exposure lamp					
Electrodeless xenon lamp					
Output level					
Binary					

(3) Document Glass

Reading area	297 x 431.8 (mm) 11.7" x 17"
Original alignment	Left edge / Rear corner alignment
Original size detection	Provided (Standard size only)
Sizes to be detected	Automatic (one detection unit to be used with software modification by destination)
Inch-1	11" x 17", 8.5" x 14", 8.5" x 11", 8.5" x 11"R, 5.5" x 8.5"
Inch-2	11" x 17", 8.5" x 13", 8.5" x 11", 8.5" x 11"R, 5.5" x 8.5"
AB-1	A3, B4, A4, A4R, B5, B5R, A5
AB-2	A3, A4, A4R, A5, B5, B5R, 216 x 330 mm
AB-3	8K, A4, A4R, A5, B4, 16K, 16KR

OR guide display	Rear left side (Print display)	Original reference position "⇒"
	Left side OR guide (Print display)	(From the Interior side) 5-1/2, A5R, B5R, A4R/A5, 8.5", B4R/B5, 11", A3R/A4
	Interior side OR guide (Print display)	(From the left side) 5-1/2, A5, B5, A4/A5R, 8-1/2, B5R, 11", A4R, 13", 14", B4R, A3R, 17"
	Interior side OR guide	Book marks are at A4 and 8-1/2 positions.
	The position available to attach the staple position guide label when the optional finisher (desktop console type) is equipped.	

(4) DSPF/SPF

Type	DSPF	One-scan-dual-side scanning method DSPF with OC integrated
Scan speed	Standard mode	45 opm
	High quality mode	22.5 opm
Original alignment	Center alignment	
Original size	A3, B4, A4, A4R, B5, B5R, A5, A5R 11"x17", 8.5"x14", 8.5"x13", 8.5"x11", 8.5"x11"R, 5.5"x8.5", 5.5"x8.5"R, 8K, 16K, 16KR (Long size original up to 800mm in FAX, e-mail and Internet Fax mode)	
Original paper weight	50~128g/m ² , 15~34lbs	
Original stack capacity	Max. 50 sheets (Max. 30 sheets for A3, B4, 11" x 17", 8.5" x 14") (Max. 15 sheets for A3, B4, 11" x 17", 8.5" x 14" over 105g/m ²) or, Total thickness less than Max. 6.5mm (at 50 to 80g/m ² , 15 to 21lbs) Max. 5.0mm (at 80 to 128g/m ² , 21 to 34lbs)	
Not transportable original type	Transparency film, secondary original paper, tracing paper, carbon paper, thermal paper, original with crumple/crimp/rip, original with attachment/clipping, original with many punch holes (with 2 or 3 holes acceptable), original preprinted with ink-ribbon, Documents with considerable curl.	
Original size detection	Provided	
Sizes to be detected	Automatic (one detection unit to be used with software modification by destination)	
	Inch-1	11" x 17", 8.5" x 14", 8.5" x 11", 8.5" x 11"R, 5.5" x 8.5", A4, A3
	Inch-2	11" x 17", 8.5" x 13", 8.5" x 11", 8.5" x 11"R, 5.5" x 8.5", A4, A3
	AB-1	A3, B4, A4, A4R, B5, B5R, A5, A3, 8.5" x 11", 11" x 17", 216 x 330 mm
	AB-2	A3, B4, A4, A4R, B5, B5R, A5, 8.5" x 11", 11" x 17", 216 x 330 mm
	AB-3	8K, A4, A4R, B4, 16K, 16KR, 8.5" x 11", 216 x 330 mm
Original tray guide display	Center of the tray (inscribed symbol)	Original reference position "←" Original face-down placement indication "⬇"
	Original Guide (inscribed symbol)	(From Center) B5R, A4R/A5, 8.5", B4R/B5, 11", A3R/A4
	The position available to attach the staple position guide label when the optional finisher (desktop console type) is equipped.	

(5) Power Source

Supplied from the main unit

(6) Dimensions

External dimensions (WxDxH)	840 x 665 x 1127 mm (33-1/16" x 26-11/64" x 44-23/64") (Includes a scanner unit) 1043 x 665 x 1127 mm (41-1/16" x 26-11/64" x 44-23/64") (For machine with AR-DU4)
Occupied space dimensions (WxD)	970 x 665 mm (38-3/16" x 26-11/64") (When the tray is extended)
Weight	DSPF: Approx. 47 lbs (21.2 kg)

(7) Display device at scanner part

Type	Dot map LCD, touch panel
Display dot number	640 x 240 dots (H-VGA) (dot pitch 0.24 x 0.24 mm)
LCD operating dimension	192 x 79 mm (7-35/64 x 3-7/64 inch)
LCD back-light	Fluorescent tube method
LCD brightness adjustment	Provided
Operation panel LCD	Monochrome H-VGA 8.9 inch

(8) Key

Mode selection area	Job status key
	Document filing key or Printer key (* online display LED/data in-memory display LED)
	Image send key (busy display LED/data in-memory display LED)
	Copy mode key
	System settings key
Basic input area	Start key
	CA key
	10-key
	Clear key
	* key #/P key

* For printer

(9) Used character in the LCD

Dot	8 x 16, 16 x 16 dots
Bold display	O

(10) Touch sense method

Resistive film method

4. Rack for Scanner

(1) Dimensions

Strength	60 kg
Weight	Approx. 16.3 (7.4 kg)

[4] CONSUMABLE PARTS

1. Supply system table

A. USA/Canada

No.	Item	Content	Life	Model name	Remarks
1	Toner cartridge (Black)	Toner cartridge (with IC) (Toner : Net weight 750 g) x 10	350K (35K x 10)	AR-455MT	*Life setup is based on A4 6%
2	Developer (Black)	Developer (Developer : Net weight 500 g) x 10	1000K (100K x 10)	AR-455MD	
3	Drum	OPC drum x1	200K	AR-455DR	

B. European Subsidiary/East Europe/Russia/Australia/New Zealand

No.	Item	Content	Life	Model name	Remarks
1	Toner Cartridge (Black)	Toner CA with IC Chip (Toner; Net Weight 750g) x 10	350K (35K x 10)	AR-455LT	*Life: A4 size at Area Coverage 6%
2	Developer (Black)	Developer (Developer; Net Weight 500g) x 10	1,000K (100K x 10)	AR-455LD	
3	Drum	Drum x 1	200K	AR-455DM	

C. Taiwan (Aurora)

No.	Item	Content	Life	Model name	Remarks
1	Toner Cartridge (Black)	Toner CA with IC Chip (Toner; Net Weight 750g) x 10	350k (35k x 10)	AR-455ET	*Life : A4 size at Area Coverage 6%
2	Developer (Black)	Developer (Developer; Net Weight 500g) x 10	1,000k (100K x 10)	AR-455LD	
3	Drum	Drum x 1	200k	AR-455DM	

D. Asia

No.	Item	Content	Life	Model name	Remarks
1	Toner Cartridge (Black)	Toner CA with IC Chip (Toner; Net Weight 750g) x 10	350K (35K x 10)	AR-455CT	*Life: A4 size at Area Coverage 6%
2	Developer (Black)	Developer (Developer; Net Weight 500g) x 10	1,000K (100K x 10)	AR-455CD	
3	Drum	Drum x 1	200K	AR-455DR	

E. Middle East/Africa/Israel/Philippines

No.	Item	Content	Life	Model name	Remarks
1	Toner Cartridge (Black)	Toner CA with IC Chip (Toner; Net Weight 750g) x 10	350K (35K x 10)	AR-455ET	*Life : A4 size at Area Coverage 6%
2	Developer (Black)	Developer (Developer; Net Weight 500g) x 10	1,000k (100K x 10)	AR-455CD	
3	Drum	Drum x 1	200k	AR-455DR	

F. Hong Kong

No.	Item	Content	Life	Model name	Remarks
1	Toner Cartridge (Black)	Toner CA with IC Chip (Toner; Net Weight 750g) x 10	350K (35K x 10)	AR-455CT-C	*Life : A4 size at Area Coverage 6%
2	Developer (Black)	Developer (Developer; Net Weight 500g) x 10	1,000K (100K x 10)	AR-455CD-C	
3	Drum	Drum x 1	200k	AR-455DR-C	

G. China

No.	Item	Content	Life	Model name	Remarks
1	Toner Cartridge (Black)	Toner CA with IC Chip (Toner; Net Weight 750g) x 1	35k	AR-456ST-C	*Life : A4 size at Area Coverage 6%
2	Developer (Black)	Developer (Developer; Net Weight 500g) x 1	100k	AR-455SD-C	
3	Drum	Drum x 1	200k	AR-455DR-C	

2. Maintenance parts list

A. USA/Canada

No.	Item	Content	Life	Model name	Remarks
1	200K Maintenance kit	Cleaner blade x 1 Drum separation pawl x 4 MC unit *1 x 1 Toner receiving seal x 1 Side malt F x 1 Side malt R x 1 Transfer roller x 1 Discharge plate x 1 Paper dust removing unit x 1 DV blade x 1 DV side seal F x 1 DV side seal R x 1	200K	AR-455KA1	*1:Screen grid, charging plate, MC cleaner unit are included.
2	Upper heat roller kit	Upper heat roller x 1 Fusing separation pawl (Upper) x 4	200K	AR-455UH	
3	Lower heat roller kit	Lower heat roller x 1 Fusing separation pawl (Lower) x 2	200K	AR-455LH	
4	Cleaner blade	Cleaner blade x 10	200K (x 10)	AR-455CB	AR-455CB = (AR-455BL) x 10
5	Cleaning roller kit	Cleaning roller x 10 Bearing x 20	200K (x 10)	AR-455CR	AR-455CR = (AR-455RC) x 10
6	Staple cartridge	Staple cartridge x 3	3000 times x 3	AR-SC1	Cartridge for AR-FN4 Common with cartridge for AR-FN6
7	Staple cartridge	Staple cartridge x 3	5000 times x 3	AR-SC2	Cartridge for AR-FN7

B. Europe/Australia/New Zealand/Taiwan

No.	Item	Content	Life	Model name	Remarks
1	200K PM kit	Cleaner blade x 1 Drum separation pawl x 4 MC unit *1 x 1 Toner receiving seal x 1 Side malt F x 1 Side malt R x 1 Transfer roller x 1 Discharger plate x 1 Paper dust removing unit x 1 DV blade x 1 DV side seal F x 1 DV side seal R x 1 Upper heat roller x 1 Fusing separation pawl (Upper) x 4 Lower heat roller x 1 Fusing separation pawl (Lower) x 2 Cleaning roller x 1 Bearing x 2	200K	AR-451KA	*1: Screen grid, charging plate, MC cleaner unit are included.
2	Staple cartridge	Staple cartridge x 3	3000 times x 3	AR-SC1	Cartridge for AR-FN4 Common with cartridge for AR-FN6
3	Staple cartridge	Staple cartridge x 3	5000 times x 3	AR-SC2	Common with cartridge for AR-FN7

Note: The other maintenance parts which are not listed above are registered as service parts.

C. Agency/Asia/Middle East/Africa/Latin America

No.	Item	Content	Life	Model name	Remarks
1	200K PM kit	Cleaner blade x 1 Drum separation pawl x 4 MC unit *1 x 1 Toner receiving seal x 1 Side malt F x 1 Side malt R x 1 Transfer roller x 1 Discharger plate x 1 Paper dust removing unit x 1 DV blade x 1 DV side seal F x 1 DV side seal R x 1 Upper heat roller x 1 Fusing separation pawl (Upper) x 4 Lower heat roller x 1 Fusing separation pawl (Lower) x 2 Cleaning roller x 1 Bearing x 2	200K	AR-451KA	*1: Screen grid, charging plate, MC cleaner unit are included.
2	Staple cartridge	Staple cartridge x 3	3000 times x 3	AR-SC1	Cartridge for AR-FN4 Common with cartridge for AR-FN6
3	Staple cartridge	Staple cartridge x 3	5000 times x 3	AR-SC2	Common with cartridge for AR-FN7

Note: The other maintenance parts which are not listed above are registered as service parts.

D. Hong Kong

No.	Item	Content	Life	Model name	Remarks
1	200K PM kit	Cleaner blade x 1 Drum separation pawl x 4 MC unit *1 x 1 Toner receiving seal x 1 Side malt F x 1 Side malt R x 1 Transfer roller x 1 Discharger plate x 1 Paper dust removing unit x 1 DV blade x 1 DV side seal F x 1 DV side seal R x 1 Upper heat roller x 1 Fusing separation pawl (Upper) x 4 Lower heat roller x 1 Fusing separation pawl (Lower) x 2 Cleaning roller x 1 Bearing x 2	200K	AR-451KA	*1: Screen grid, charging plate, MC cleaner unit are included.
2	Staple cartridge	Staple cartridge x 3	3000 times x 3	AR-SC1	Cartridge for AR-FN4 Common with cartridge for AR-FN6
3	Staple cartridge	Staple cartridge x 3	5000 times x 3	AR-SC2	Common with cartridge for AR-FN7

Note: The other maintenance parts which are not listed above are registered as service parts.

E. China

No.	Item	Content	Life	Model name	Remarks
1	200K PM kit	Cleaner blade x 1 Drum separation pawl x 4 MC unit *1 x 1 Toner receiving seal x 1 Side malt F x 1 Side malt R x 1 Transfer roller x 1 Discharger plate x 1 Paper dust removing unit x 1 DV blade x 1 DV side seal F x 1 DV side seal R x 1 Upper heat roller x 1 Fusing separation pawl (Upper) x 4 Lower heat roller x 1 Fusing separation pawl (Lower) x 2 Cleaning roller x 1 Bearing x 2	200K	AR-451KA	*1: Screen grid, charging plate, MC cleaner unit are included.
2	Staple cartridge	Staple cartridge x 3	3000 times x 3	AR-SC1	Cartridge for AR-FN4 Common with cartridge for AR-FN6
3	Staple cartridge	Staple cartridge x 3	5000 times x 3	AR-SC2	Common with cartridge for AR-FN7

Note: The other maintenance parts which are not listed above are registered as service parts.

2. Production number identification

A. Drum cartridge

The lot number, printed on the front side flange, is composed of 10 digits, each digit showing the following content:

1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	----

- 1 Number
For this model, this digit is 2.
- 2 Alphabet
Indicates the model conformity code. T for this model.
- 3 Number
Indicates the end digit of the production year.
- 4 Number or X, Y, Z
Indicates the production month.
X stands for October, Y November, and Z December.
- 5/6 Number
Indicates the production day on the month.
- 7 Number or X, Y, Z
Indicates the month of packing.
X stands for October, Y November, and Z December.
- 8/9 Number
Indicates the day of the month of packing.
- 10 Alphabet
Indicates the production factory. "A" for Nara Plant.

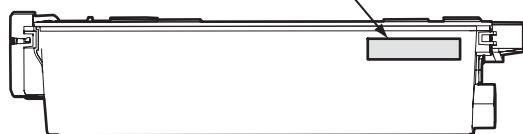
B. Toner cartridge

The lot number is of 7 digits, and each digit indicates as follows.
The lot number shall be printed in the position shown in the figure.

1	2	3	4	5	6	7
---	---	---	---	---	---	---

- 1 Version number (A - sequentially revised)
- 2 Numeral figure
Indicates the end digit of the production year.
- 3 Alphabet
Indicates the production factory. (B for SOCC)
- 4 Destination code
- 5/6 Numeral figures
Indicates the production day.
- 7 Numeral figure or X, Y, Z
Indicates the production month.
X stands for October, Y November, and Z December.

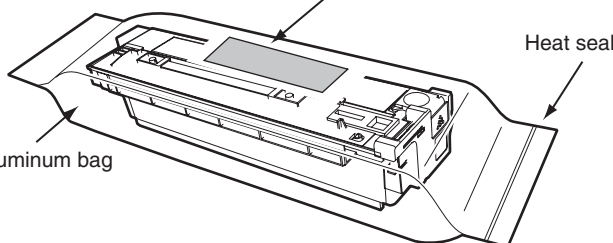
Serial No. attachment



Serial No. attachment

Heat seal

Aluminum bag



C. Developer cartridge

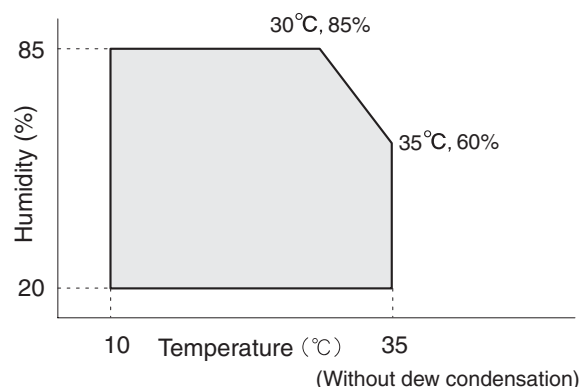
The lot number is of 8 digit, and each digit indicates as follows.
The lot number shall be printed on the bag.

1	2	3	4	5	6	7	8
---	---	---	---	---	---	---	---

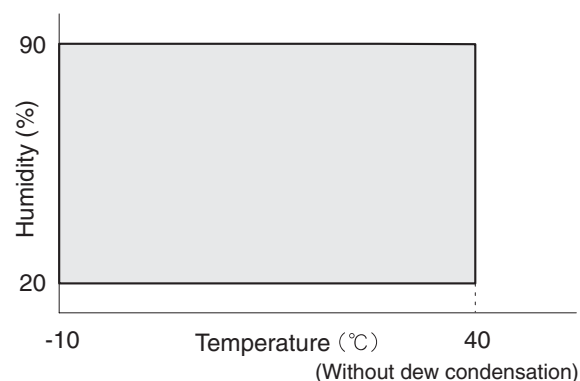
- 1 Alphabet
Indicates the production factory.
- 2 Number
Indicates the production year.
- 3/4 Number
Indicates the production month.
- 5/6 Number
Indicates the production day.
- 7 Hyphen
- 8 Number
Indicates the production lot.

3. Environmental conditions

A. Operating conditions

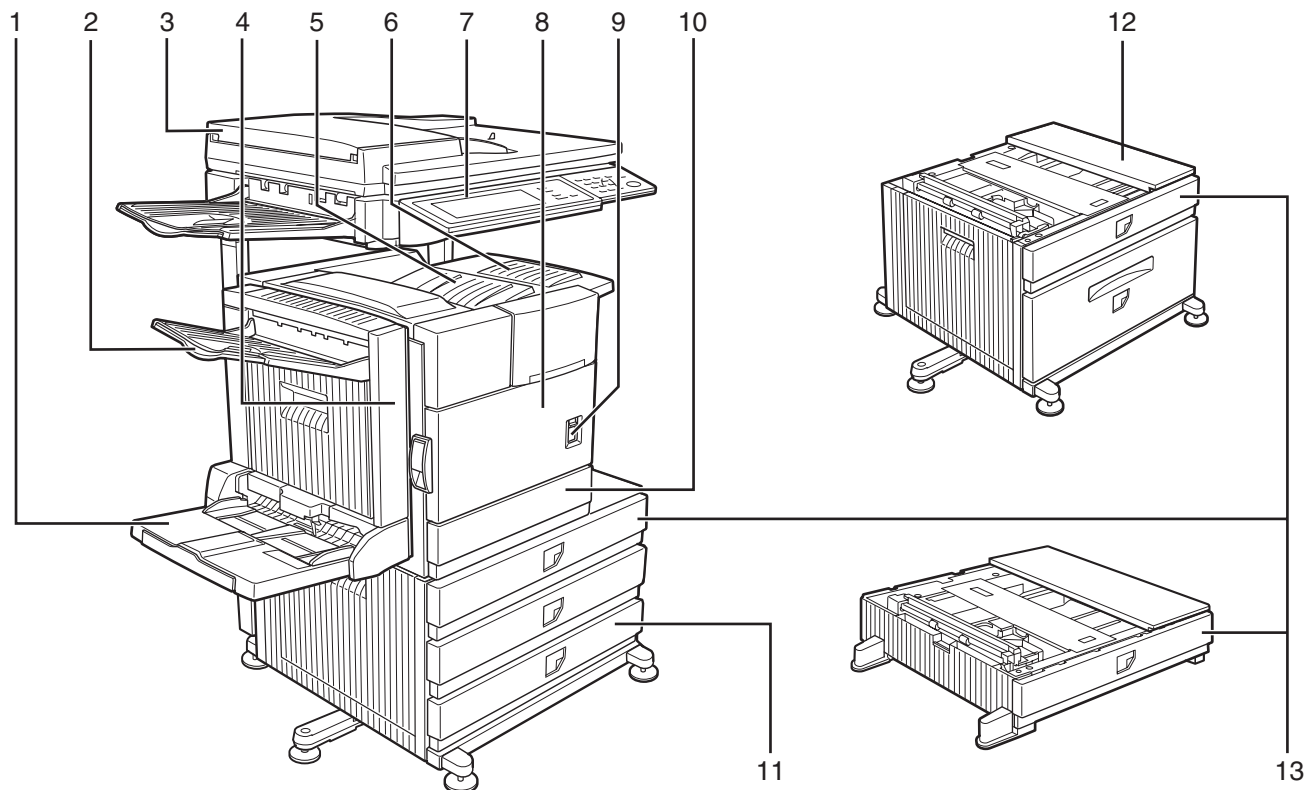


B. Storage conditions



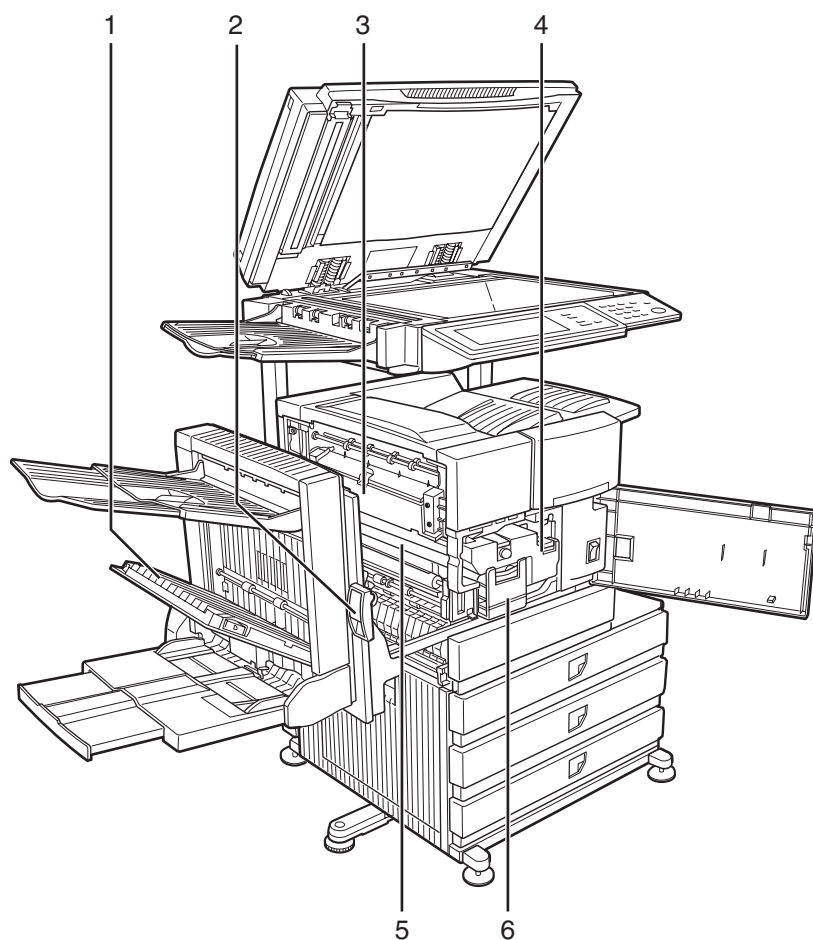
[5] EXTERNAL VIEWS AND INTERNAL STRUCTURES

1. Exterior



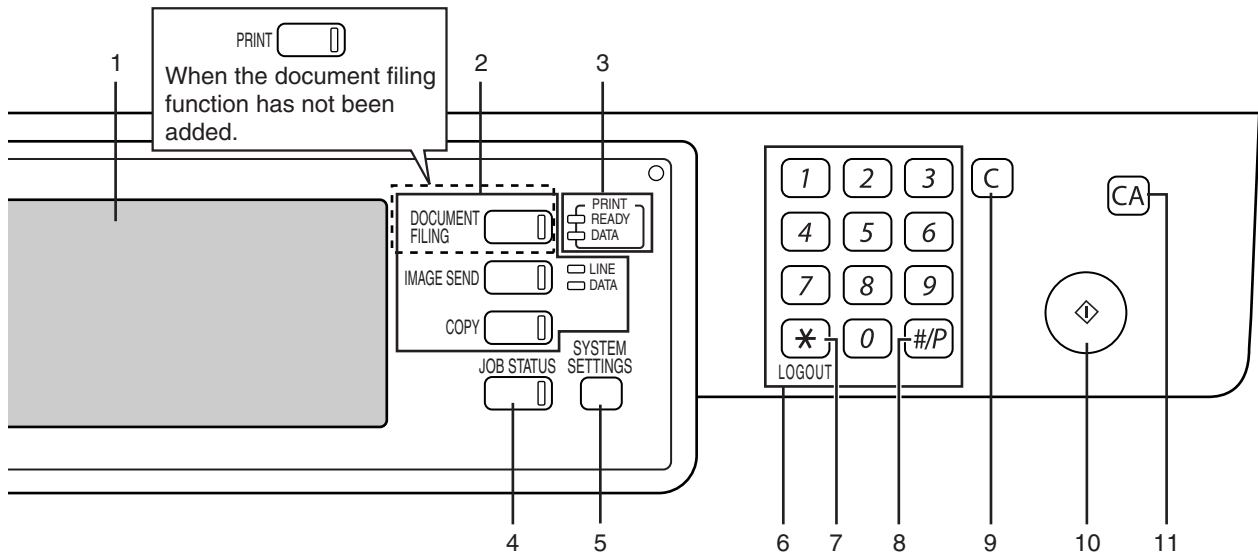
No.	Name	Function/Operation	Note
1	Bypass tray	This tray can also be used for special papers including transparency film.	Option (AR-DU4)
2	Exit tray	The tray is extendable to support large size paper. Extend the tray when 11" x 17", 8-1/2" x 14", 8-1/2" x 13", A3 or B4 paper is being used.	Option (AR-DU4/AR-TE3)
3	Automatic document feeder	This automatically feeds and scans multiple sheet originals. Both sides of two-sided originals can be scanned at once.	Option (MX-EFX1)
4	Duplex module	Module for two-sided printing	Option (AR-DU3/DU4)
5	Upper paper output area (Center tray)	Finished sheets are deposited here.	—
6	Upper exit tray extension	Provides support for large size paper.	Option (AR-TE4)
7	Operation panel	—	—
8	Front cover	Open to add toner.	—
9	Power switch	Press to turn power on and off.	—
10	Paper tray 1	—	—
11	Stand/3 x 500 sheet paper drawer	This paper feed unit contains an upper multi-purpose drawer and two lower drawers each of which can hold a maximum of 500 sheets of 20 lbs. (80 g/m ²) paper.	Option (AR-D27)
12	Stand/MPD & 2000 sheet paper drawer	This paper feed unit contains an upper multi-purpose drawer and a lower drawer which can hold a maximum of 2000 sheets of 20 lbs. (80 g/m ²) paper.	Option (AR-D28)
13	Multi purpose drawer	Up to 500 sheets of 20 lbs. (80 g/m ²) paper can be loaded. Also special papers such as envelopes (standard sizes only) and postcards can be set.	Option (AR-MU2)

2. Interior



No.	Name	Function/Operation
1	Duplex module side cover	Open when a misfeed has occurred in the duplex module.
2	Side cover latch	Push up to open the side cover when a misfeed has occurred in the main unit.
3	Fusing unit	Lift up to open the side cover when a misfeed has occurred in the main unit. CAUTION: The fusing unit is hot. Take care in removing misfed paper.
4	Toner cartridge (drum/toner cartridge)	The toner cartridge must be replaced when indicated on the operation panel.
5	Photoconductive drum	Images are formed on the photoconductive drum. NOTE: Do not touch or damage the photoconductive drum.
6	Cartridge lock lever	When replacing the drum, toner or developer cartridge, turn down this lever and pull it out.

3. Operation panel



No.	Name	Function/Operation
1	Touch panel	The machine status, messages and touch keys are displayed on the panel. The document filing* ¹ , copy, network scanner* ² , fax* ³ , and Internet fax* ⁴ functions are used by switching to the screen for the desired function.
2	Mode select keys and indicators	Use to change modes and the corresponding display on the touch panel. [DOCUMENT FILING] key Press to select the document filing mode* ¹ . * When the document filing function has not been added, this key is the [PRINT] key. This key is pressed to change to the print mode screen. [IMAGE SEND] key/LINE indicator/DATA indicator Press to change the display to network scanner mode* ² , fax mode* ³ or Internet fax mode* ⁴ . [COPY] key Press to select the copy mode.
3	PRINT mode indicators	READY indicator Print data can be received when this indicator is lit. DATA indicator Lights up or blinks when print data is being received. Also lights up or blinks when printing is being performed.
4	[JOB STATUS] key	Press to display the current job status.
5	[SYSTEM SETTINGS] key	This is used to store, edit, and delete user names and folder names for the document filing function* ¹ , and to configure the administrator settings and printer configuration settings.
6	Numeric keys	Use to enter numeric values for various settings.
7	[*] key ([LOGOUT] key)	This key is used in copy mode, document filing mode* ¹ , network scanner mode* ² , fax mode* ³ , and Internet fax mode* ⁴ .
8	[#/P] key	This is used as a program key when using the copy function, and to dial when using the fax function* ³ .
9	[C] key (Clear key)	This key is used in copy mode, document filing mode* ¹ , network scanner mode* ² , and fax mode* ³ .
10	[START] key	Use this key to start copying in copy mode, scan a document in network scanner mode* ² , or scan a document for transmission in fax mode* ³ or Internet fax mode* ⁴ .
11	[CA] key (Clear all key)	This key is used in copy mode, document filing mode* ¹ , network scanner mode* ² , fax mode* ³ , and Internet fax mode* ⁴ . Use the key to cancel settings and perform an operation from the initial machine state.

*¹: MX-M350N/M450N, or when the document filing function has been added.

*²: When the network scanner option is installed.

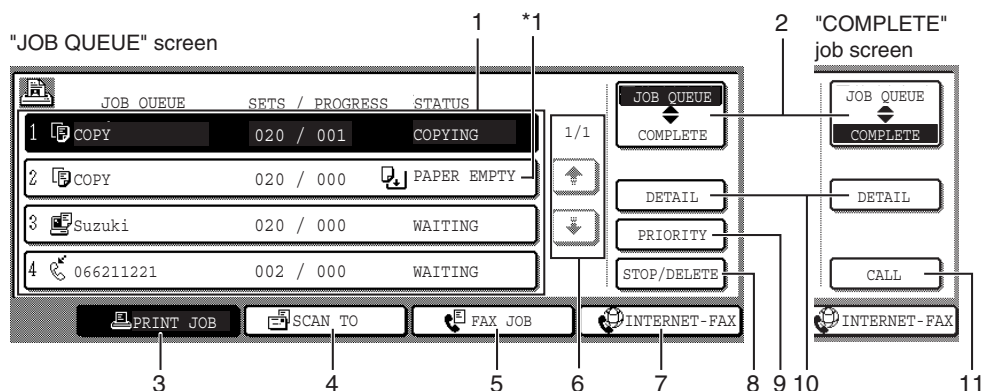
*³: When the fax option is installed.

*⁴: When the Internet fax option is installed.

4. Job status screen (common to print, scan, fax and Internet fax)

This screen is displayed when the [JOB STATUS] key on the operation panel is pressed.

This screen can be used to display the "JOB QUEUE" (showing stored jobs and the current job) or the "COMPLETE" job list (showing finished jobs). This screen can be used to check jobs, interrupt a job in progress to perform another job, and cancel a job.



No.	Name	Function/Operation
1	Job list	The displayed jobs in the job list are themselves operation keys. To cancel printing or to give a job the highest print priority, touch the relevant job key to select the job and execute the desired operation using the keys described in 8 and 9. This shows the current job and the jobs waiting to be run. The icons to the left of the jobs in the queue show the job mode. The document filing reprint job icon is highlighted. Note that the icon does not become highlighted during retransmission of a fax/image transmission job. Print mode Copy mode SCAN mode Scan to e-mail job Scan to FTP job Scan to Desktop job Scan to Network folder job Fax mode Fax send job Fax reception job PC-Fax send job Internet Fax mode Internet Fax send job Internet Fax reception job PC-Internet Fax send job *1: "PAPER EMPTY" in the job status display When a job status display indicates "PAPER EMPTY", the specified paper size for the job is not loaded in any of the trays. In this case, the job will be suspended until the required paper is loaded. Other stored jobs will be printed (if possible) until the required paper is loaded. (Other jobs will not be printed if the paper runs out during printing.) If you need to change the paper size because the specified paper size is not available, touch the current job key to select it and then touch the [DETAIL] key described in 10.
2	Mode select key	This switches the job list display between "JOB QUEUE" and "COMPLETE". "JOB QUEUE": Shows stored jobs and the job in progress. "COMPLETE": Shows finished jobs. Files saved using the "FILE"*2 and "QUICK FILE"*2 functions and finished broadcast transmission jobs appear as keys in the finished job screen. The "FILE"*2 or "QUICK FILE"*2 job keys in the finished job screen can be touched, followed by the [CALL] key*2, to call up a finished job and print or transmit it. A finished broadcast transmission job key can be touched followed by the [DETAIL] key to check the result of the transmission.
3	[PRINT JOB] key	This displays the print job list of print mode (copying, printing, fax reception, Internet fax reception, and self printing).
4	[SCAN TO] key	This displays the transmission status and finished jobs of scan mode (Scan to e-mail, Scan to FTP, Scan to Desktop, and Scan to Network Folder) when the network scanner option is installed.
5	[FAX JOB] key	This displays the transmission/reception status and finished jobs of fax mode (fax and PC-Fax) when the fax option is installed.
6	Display switching keys	Use to switch the page of the displayed job list.
7	[INTERNET-FAX] key	This displays the transmission/reception status and finished jobs of Internet fax mode and PC Internet fax mode when the Internet fax option is installed.
8	[STOP/DELETE] key	Use to cancel or delete the current job or delete the stored job. Note that printing of received faxes and received Internet faxes cannot be canceled or deleted.
9	[PRIORITY] key	Touch this key after selecting a stored job in this [JOB QUEUE] list to print the job ahead of the other jobs. Note that a job in progress cannot be interrupted if it is an interrupt copy job or if it is a list print job.
10	[DETAIL] key	This shows detailed information on the selected job. Files saved using the "FILE"*2 and "QUICK FILE"*2 functions and finished broadcast transmission jobs appear as keys in the finished job screen. A Quick File in the finished job screen or the [Filing] key*2 can be touched, followed by the [CALL] key*2, to call up a finished job and print or transmit it. A finished broadcast transmission job key can be touched followed by the [DETAIL] key to check the result of the transmission.
11	[CALL] key*2	When this key is touched after selecting a job in the COMPLETE job status screen (a job stored using the FILE or QUICK FILE keys of the document filing function), the "JOB SETTINGS" menu screen appears to let you resend or reprint the finished job.

*2: Can only be used on the MX-M350N/M450N, or when the document filing function has been added.

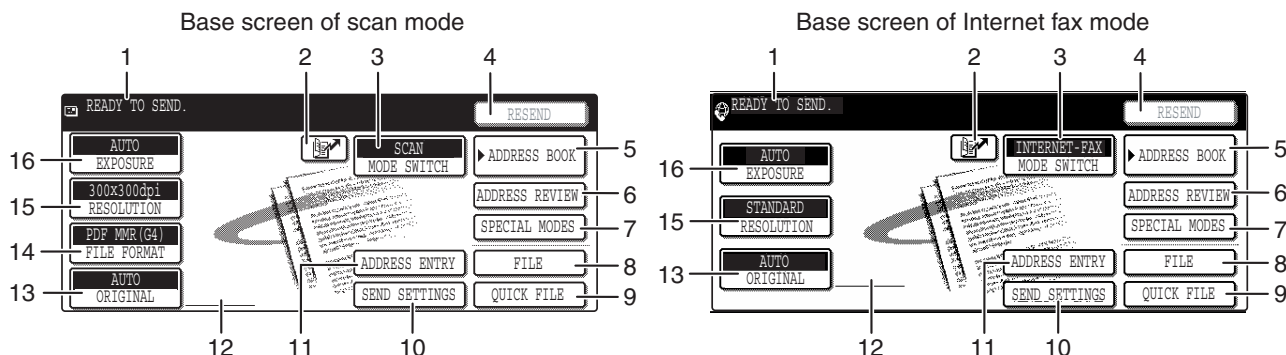
5. BASE SCREEN

To display the base screen of a mode, touch the [IMAGE SEND] key in the touch panel and then select the desired mode with the [MODE SWITCH] key.

If you have set the display to show the address book screen when the [IMAGE SEND] key is pressed, touch the [CONDITION SETTINGS] key in the address book to display the condition setting screen.

The administrator setting can be used to set the display to show either the condition setting screen or the Address book screen when the [IMAGE SEND] key is pressed.

A. Condition settings screen



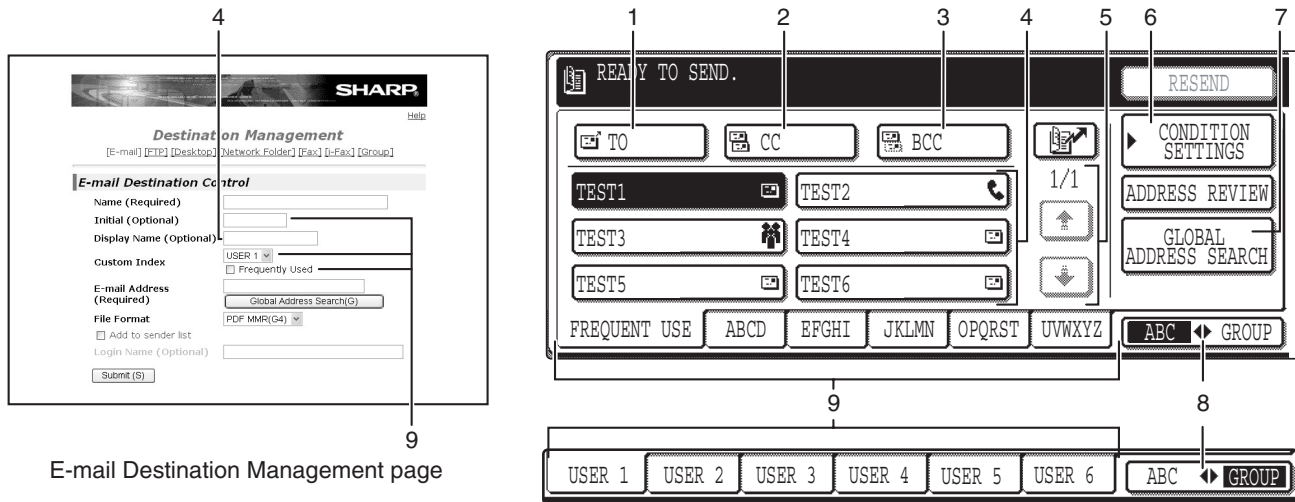
No.	Name	Function/Operation
1	Message display	Messages appear here to indicate the current status of the machine. When the machine is ready to send, an icon appears to the left.
2	[] (Quick) key	When you add a one-touch key or a group key, the machine will automatically assign a shortened number. Use this key for a three-digit shortened number to simplify the transmission procedure.
3	[MODE SWITCH] key	Touch this to change the image send mode. The modes that can be selected will vary depending on the peripheral devices (network scanner expansion kit, facsimile expansion kit, Internet fax expansion kit) that are installed. When the application integration module is installed, the [DATA ENTRY] key appears below the [MODE SWITCH] key.
4	[RESEND] key	Touch this key to resend to the last Scan to E-mail, Internet fax, or fax destination used. Note that the following types of destinations are not retained for the resend function. • A one-touch key in which multiple destinations are stored (group key). • Scan to FTP, Scan to Desktop, and Scan to Network Folder addresses. • Broadcasting addresses • Addresses used only for BCC delivery After the resend address is entered, the key changes to the [NEXT ADDRESS] key.
5	[ADDRESS BOOK] key	This displays the Address Book screen. Touch this key when you wish to use a onetouch key that has a destination (or group) programmed in it.
6	[ADDRESS REVIEW] key	When performing a broadcast transmission, touch this key to check your selected destinations. Your selected destinations will appear as a list, and the list can be edited.
7	[SPECIAL MODES] key	Touch this key to set the special modes. • Program • Erase • Dual page scan • Timer • 2 in 1 • Card shot • Job build • Transaction report
8	[FILE] key	Touch this key to store a document image that you are transmitting in the hard disk (this includes selecting a user name, file name, and location).
9	[QUICK FILE] key	Touch this key to store a document image that you are transmitting in the temporary storage folder.
10	[SEND SETTINGS] key	Touch this key to set the subject, file name, and sender name.
11	[ADDRESS ENTRY] key	When performing Scan to E-mail, touch this key if you wish to enter the e-mail address of the recipient manually instead of using a one-touch key.
12	Two-sided scanning icon display	Icons appear here when you touch the [ORIGINAL] key and select two-sided scanning. The icons can be touched to open function selection screens.
13	[ORIGINAL] key	Touch this key when you wish to manually set the size of the original to be scanned or scan both sides of the original.
14	[FILE FORMAT] key	Touch this key to set the file format of scan images that you transmit. The selected file format setting will be highlighted above the key. The initial factory setting is "PDF MMR(G4)".
15	[RESOLUTION] key	Touch this key to change the resolution setting for the original to be scanned. The selected resolution setting will be highlighted above the key. The initial factory setting is "300x300dpi" (SCAN mode) or "STANDARD" (INTERNET-FAX mode).
16	[EXPOSURE] key	Touch this key to change the exposure setting for the original to be scanned. The selected exposure setting will be highlighted above the key. The initial factory setting is "AUTO".

B. Address book screen

If you have set the initial screen to the address book screen using the Administrator setting, the initial screen will appear as follows.

Destinations stored using the Web page are grouped in indexes (9) according to the letter entered in "Initial" for each destination, and the name entered in "Display Name" is displayed in the one-touch key (4).

The screen shown below is the address book screen with an alphabetical index. The address book screen can be set with the group index as the initial screen.

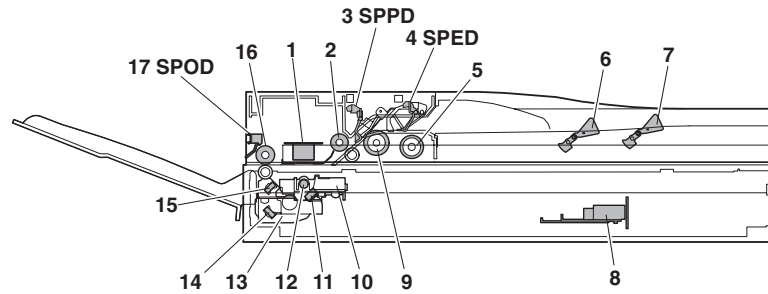


E-mail Destination Management page

No.	Name	Function/Operation						
1	[TO] key	After selecting a destination using a one-touch key or the global address search function, touch this key. For Scan to E-mail or Internet-Fax transmission, you can select multiple destinations before touching this key.						
2	[CC] key	If you wish to send a "CC" ("Carbon Copy") of a Scan to E-mail transmission to other recipients in addition to the main recipient, after selecting destinations using one-touch keys or the global address search function, touch this key. You can select multiple destinations before touching this key.						
3	[BCC] key	This key only appears when the [ENABLE BCC] checkbox is selected in [BCC SETTING] in the administrator settings. If you wish to send a "BCC" ("Blind Carbon Copy") of a Scan to E-mail transmission to other recipients in addition to the main recipient, after selecting destinations using one-touch keys or the global address search function, touch this key. Other recipients will not be informed that a copy was sent to the "BCC" recipients. You can select multiple destinations before touching this key.						
4	One-touch key display	This shows the one-touch keys that have been stored on the selected "index card". The key type is indicated by the icon at the right. : Scan to E-mail : Scan to Desktop : Internet-Fax : Multiple destinations including Scan to E-mail and Fax destinations : Scan to FTP : Scan to Network Folder : Fax (An optional facsimile expansion kit is required.) This can be changed to 6 or 9 using the administrator setting, "The number of direct address/sender keys displayed setting".						
5	Display switching keys	In cases where the one-touch keys cannot all be displayed on one screen, this shows how many screens are left. Touch the "↑" "↓" keys to move through the screens.						
6	[CONDITION SETTINGS] key	This displays the Condition settings screen, which is used to set various conditions.						
7	[GLOBAL ADDRESS SEARCH] key	This feature makes it possible to search for an email address in an Internet or intranet directory database. To use this function, the IP address (or network name) of the LDAP server must be set, as well as an account name and password. These settings are configured by accessing the Web server in the machine from a computer. Click "LDAP" in the Web page menu frame to display the LDAP Setup screen.						
8	[ABC ◀ GROUP] key	Touch this key to switch between the alphabetical index and the group index.						
9	Index keys	One-touch key destinations are stored on each of these index cards (alphabetical index or group index). Touch an index key to display the card. Each time you touch the same index key, the order of display of one-touch keys changes as follows: Order of registration → Alphabetical order → Reverse alphabetical order. An icon indicating the current display order will appear on the tab. <table border="1" style="width: 100%; text-align: center;"> <thead> <tr> <th>Storing order (initially selected)</th><th>Ascending order</th><th>Descending order</th></tr> </thead> <tbody> <tr> <td> FREQUENT USE ABCD</td><td> FREQUENT USE ABCD</td><td> FREQUENT USE ABCD</td></tr> </tbody> </table> Group indexes make it possible to store one-touch keys by group with an assigned name for easy reference. This is done with the custom settings. Frequently used one-touch key destinations can be stored on the FREQUENT USE card for convenient access.	Storing order (initially selected)	Ascending order	Descending order	FREQUENT USE ABCD	FREQUENT USE ABCD	FREQUENT USE ABCD
Storing order (initially selected)	Ascending order	Descending order						
FREQUENT USE ABCD	FREQUENT USE ABCD	FREQUENT USE ABCD						

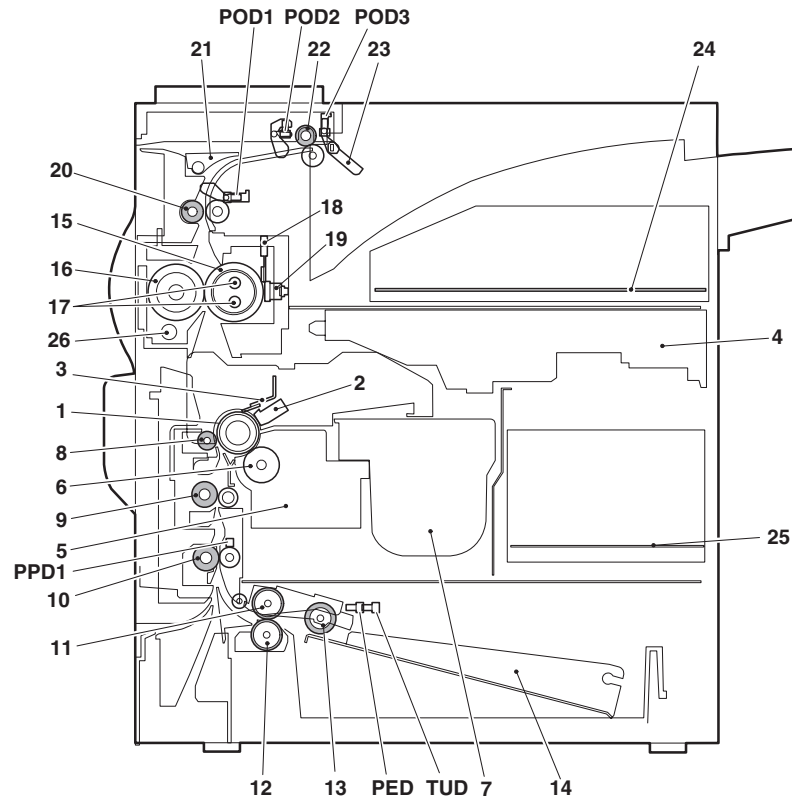
6. Cross sectional view

A. Scanner unit



No.	Name	No.	Name
1	CIS unit	10	Copy lamp base unit
2	Original resist roller	11	No. 1 mirror
3	Original resist front sensor (SPPD)	12	Copy lamp (Xenon)
4	Original set sensor (SPED)	13	Mirror base unit
5	Original take-up sensor	14	No. 3 mirror
6	Original length sensor 1 (SPLS1)	15	No. 2 mirror
7	Original length sensor 2 (SPLS2)	16	Original exit roller
8	CCD/lens unit	17	Original exit sensor
9	Original feed roller		

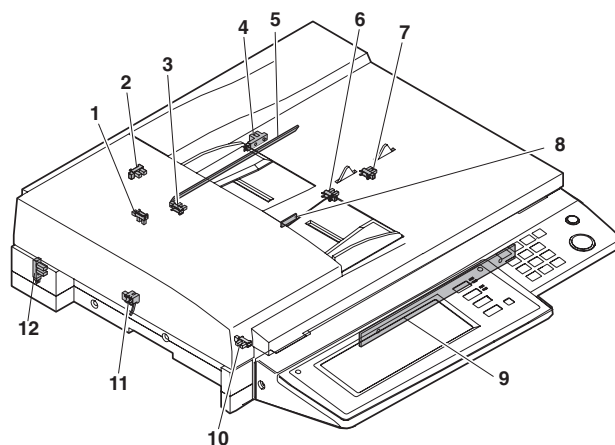
B. Engine



No.	Name	No.	Name
1	OPC drum	14	Machine tray (Paper tray1) rotating plate
2	Main charger	15	Upper heat roller
3	Cleaning blade	16	Pressure roller
4	LSU	17	Heater lamp
5	Developing unit	18	Thermistor (RTH1 / RTH2)
6	Magnet roller	19	Thermostat
7	Toner hopper	20	Fusing back roller
8	Transfer roller	21	Reverse gate
9	Resist roller	22	Paper exit roller
10	Paper transport roller	23	Full detection lever
11	Machine tray (Paper tray1) paper feed roller	24	Printer control PWB
12	Machine tray (Paper tray1) separation roller	25	Power supply unit
13	Machine tray (Paper tray1) take-up roller	26	Cleaning roller

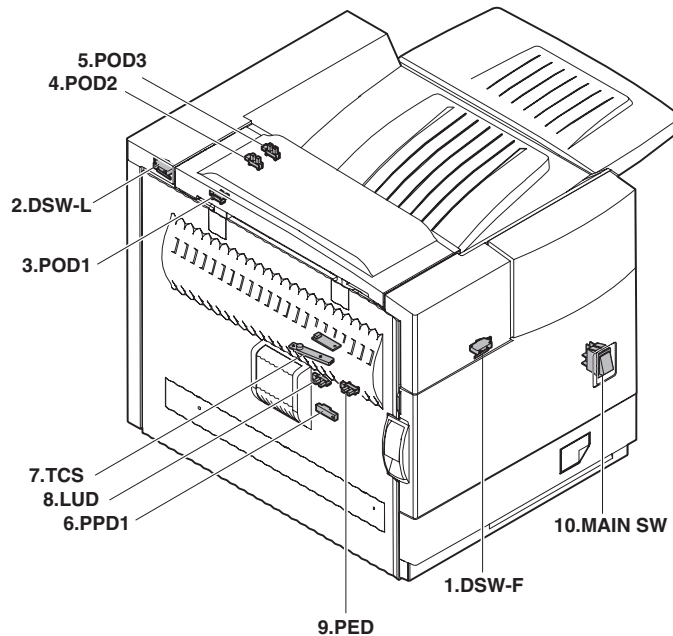
7. Switch, Sensor

A. Scanner unit



	Code	Name	Active condition
1	SPPD	SPF original resist front sensor	
2	SCOV	SPF paper feed cover sensor	
3	SPED	SPF original set sensor	
4	OCSW	OC open/close sensor	
5	ORS-LED	Original size sensor PWB (Light emitting side)	
6	SPLS1	SPF original length sensor 1	
7	SPLS2	SPF original length sensor	
8	SPFVR	SPF original width detection volume PWB	
9	ORS-PD	Original size sensor PWB (Light receiving side)	
10	SOCD	SPF open/close sensor	
11	SPOD	SPF original exit sensor	
12	MHPS	Mirror home position sensor	

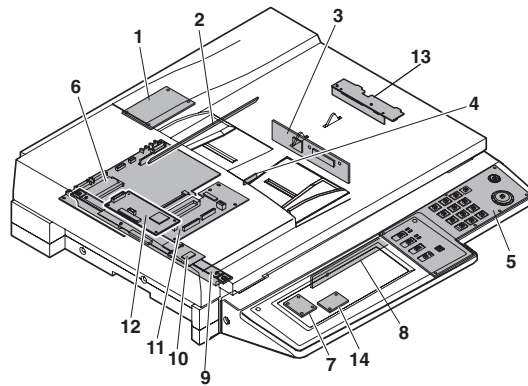
B. Engine



	Code	Function/Operation	Active condition
1	DSW-F	Front door open/close detection	H= Door open
2	DSW-L	Left door open/close detection	H=Door open
3	POD1	Paper exit detection	L= Paper detection
4	POD2	Paper exit detection	L= Paper detection
5	POD3	Paper exit detection Full	L= Paper detection
6	PPD1	Paper transport detection	L= Paper detection
7	TCS	Toner concentration sensor	
8	LUD	Paper feed cassette upper limit detection	H= Upper limit detection
9	PED	Paper feed cassette paper empty detection	L= Paper empty detection
10	MAIN SW	Power switch	

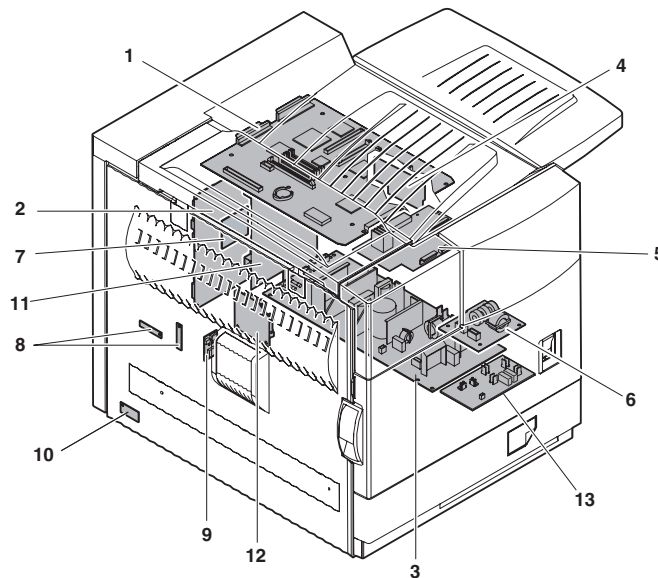
8. PWB

A. Scanner unit



No.	Name	Function/Operation
1	SPF control PWB	SPF control
2	Original size detection PWB (Light emitting side)	Original size detection when using the table glass
3	CCD PWB (in lens unit) (The lens unit cannot be disassembled.)	Image scan (Table glass/SPF surface)
4	SPF original width detection volume PWB	SPF original width detection
5	MFP operation PWB	Panel operation control
6	Scanner control PWB	Scanner unit control
7	LVDS PWB	LCD signal relay
8	Original size sensor (Light receiving side)	Original size detection when using the table glass
9	CIS unit (in CIS unit) (The CIS unit cannot be disassembled.)	Image scan (SPF back surface)
10	CIS interface PWB (in CIS unit) (The CIS unit cannot be disassembled.)	CIS signal AD conversion process
11	Scanner interface PWB	Scanner unit and connection of scanner control PWB
12	CIS control PWB	CIS unit control and image process
13	CL inverter PWB	Inverter for copy lamp
14	LCD INV PWB	Generates a high voltage for the backlight.

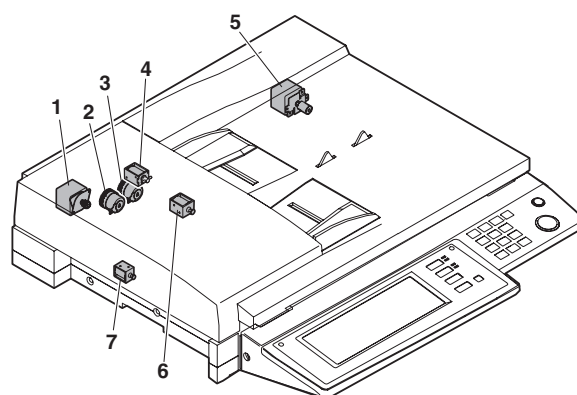
B. Engine



No.	Name	Function/Operation
1	PRT controller	Image process, image data communication control
2	PCU PWB	Overall control of the machine and options
3	Power supply unit	DC power supply
4	LD PWB (Inside LSU)	Laser ON control (Inside LSU: LSU cannot be disassembled.)
5	Mother PWB	Signal interface between PCU and the controller
6	Reactor PWB (200V only) / Filter PWB (Taiwan only)	Noise filter
7	BD PWB	Laser control (Inside LSU: LSU cannot be disassembled.)
8	High voltage resistor PWB	High voltage load adjustment
9	Cassette detection PWB	Paper cassette control
10	Drawer PWB	Fan control
11	High voltage power supply	High voltage power supply
12	Fuse PWB	Protection of the machine when an abnormal power is supplied.
13	Relay PWB	HDD back up

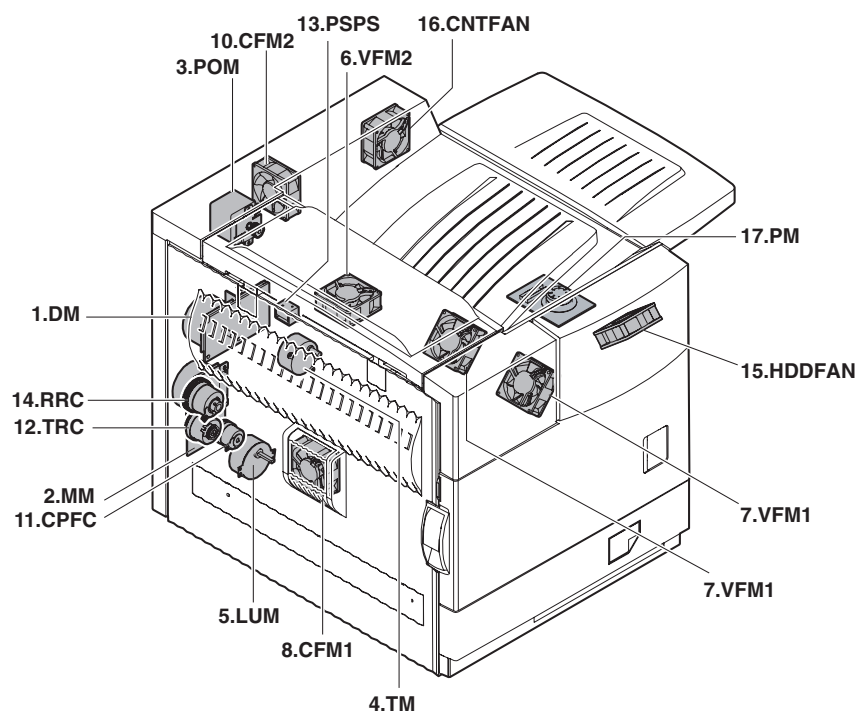
9. Motor, Clutch, Solenoid

A. Scanner unit



No.	Name		Function/Operation
1	SPFM	SPF motor	Original transport in SPF scan
2	SRRC	SPF original resist clutch	SPF original scan timing adjustment
3	SPFC	SPF original feed clutch	SPF original feed roller drive
4	SDSS	SPF original stopper solenoid	SPF original stopper gate drive
5	MIRM	Mirror motor	Mirror base copy lamp base drive
6	SPFS	SPF original feed solenoid	SPF original feed unit drive
7	STMPS	Stamp solenoid	Finish stamp drive (Japan only)

B. Engine



	Code	Function/Operation	Type
1	DM	Drum motor	Brushless motor
2	MM	Main motor	Brushless motor
3	POM	Paper exit motor	Stepping motor
4	TM	Toner motor	Synchronous motor
5	LUM	Lift-up motor	Synchronous motor
6	VFM2	Heat exhaust fan motor	Fan motor
7	VFM1	Cooling fan motor	Fan motor
8	CFM1	Suction fan motor	Fan motor
10	CFM2	Ozone exhaust fan motor	Fan motor
11	CPFC	Paper cassette paper feed clutch	
12	TRC	Paper transport clutch	
13	PSPS	Separation solenoid	
14	RRC	Resist roller clutch	
15	HDDFAN	Cooling fan motor (for HDD)	Fan motor
16	CNTFAN	Cooling fan motor (for controller)	Fan motor
17	PM	Polygon motor	Polygon motor

[6] UNPACKING AND INSTALLATION

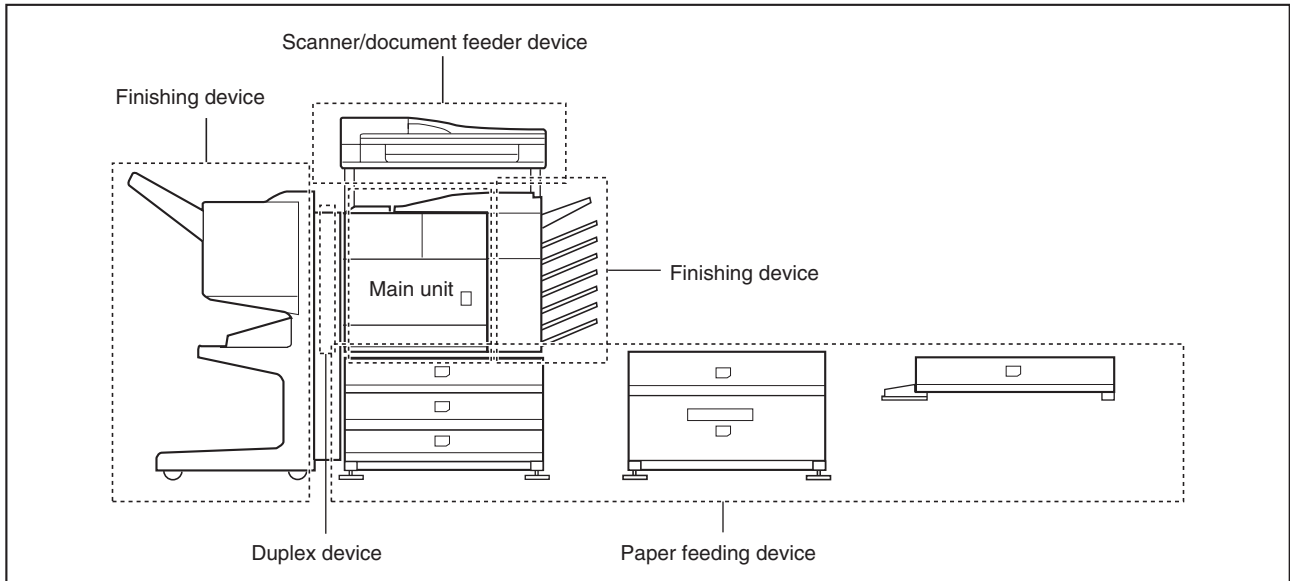
1. Installing procedure flowchart

There are many combinations between this machine and option units. For installing option units, observe the following procedures for efficiency.

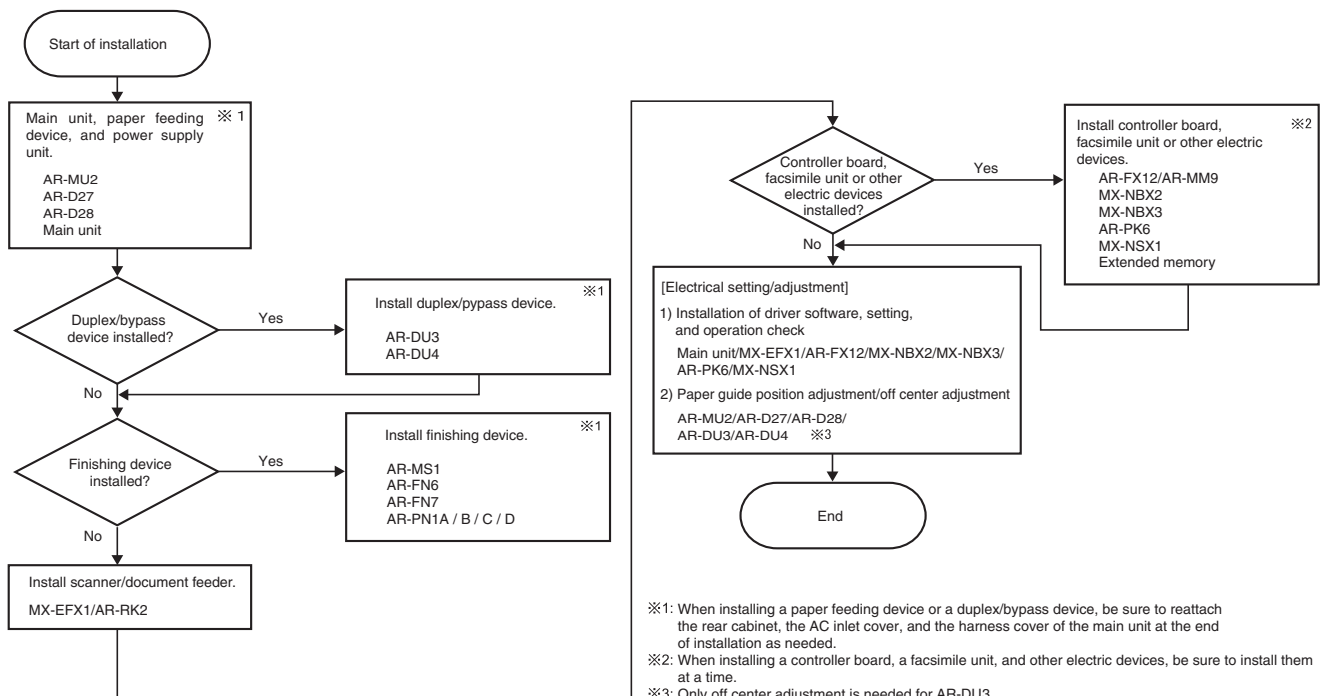
To install the devices efficiently, follow the procedure below.

Some peripheral devices may have been installed as standard devices depending on the main unit model.

Part of descriptions and illustrations may be different.



* To install the AR-MU2, the optional exclusive-use desk is required.

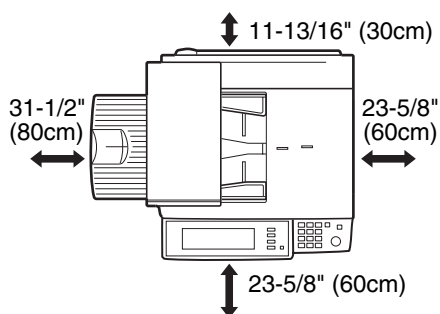


* For installation of an option unit, refer to the Service Manual of the option unit.

2. Note for installation place

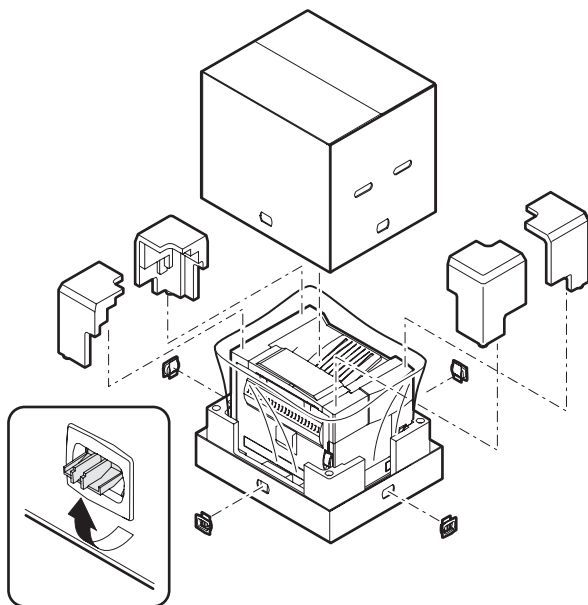
Improper installation may damage this product. Please note the following during initial installation and whenever the machine is moved.

- 1) The machine should be installed near an accessible power outlet for easy connection.
- 2) Be sure to connect the power cord only to a power outlet that meets the specified voltage and current requirements. Also make certain the outlet is properly grounded.
 - For the power supply requirements, see the name plate of the main unit.
- 3) Do not install your machine in areas that are:
 - damp, humid, or very dusty
 - exposed to direct sunlight
 - poorly ventilated
 - subject to extreme temperature or humidity changes, e.g., near an air conditioner or heater.
- 4) Be sure to allow the required space around the machine for servicing and proper ventilation.



3. Unpacking procedure

- 1) Release the joint, and remove the packing case.
- 2) Remove the top pad, and open the electrostatic polyethylene bag.

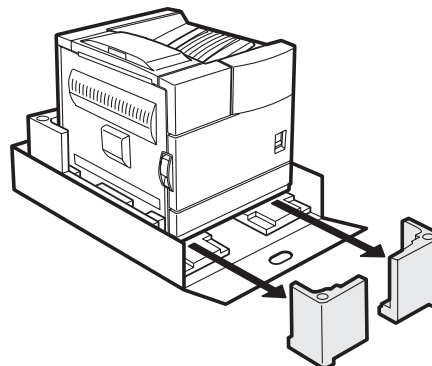


Check the following items are included in the package.

MX-M350N/M450N	MX-M350U/M450U
Operating Manual (Common/Copier, Administrator guide (System settings))	
Web manuals (Printer) (Network Scan)	—
Installation manual (PCL/PS)	

MX-M350N/M450N	MX-M350U/M450U
CD-ROM (Printer)	
Maintenance card/Maintenance case (Except UK)	
Warranty Registration (UK only)	
Delivery/installation report (Europe only)	
MSDS card (North America/UK only)	
Warranty (Australia only)	
Scanner key sheet (Local area only)	
Dust cover (Local area only)	

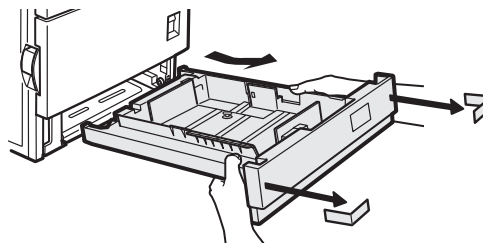
- 3) Remove the cushioning materials from the right and left of the front side.



- 4) Remove the locking tape from the right and left sides of the tray.

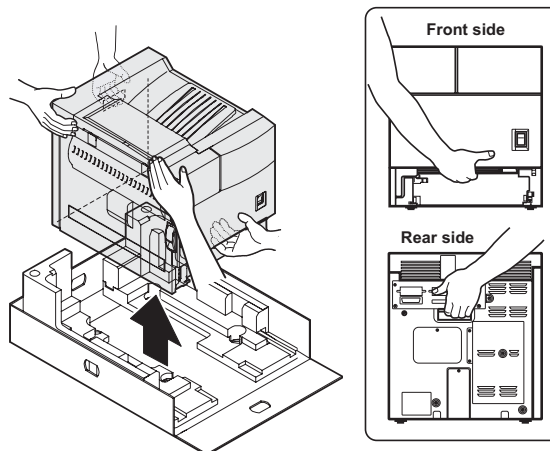
Then, Remove the top of the carton and lower the plastic bag covering the machine while the machine is still on the carton base.

- 5) Remove the packing tape from the paper tray, pull out the paper tray until it stops and remove it by tilting it upward.



- 6) One person must lift by the empty front tray pocket with the right hand and steady the machine with the left hand placed at the upper left of the machine.

The other person must lift with the right hand by using the lifting recess in the rear of the machine and also steady the machine with the left hand as shown in the illustration.



Note: The center of gravity of the machine lies in the left side when viewed from the Back of machine. When lifting the machine, be careful not to drop it.

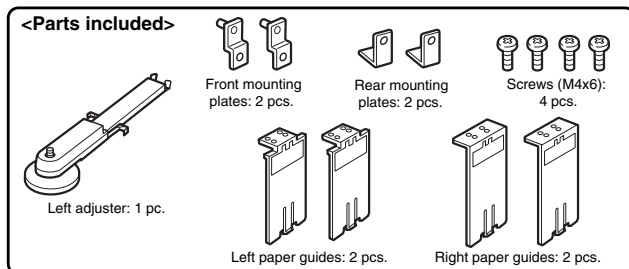
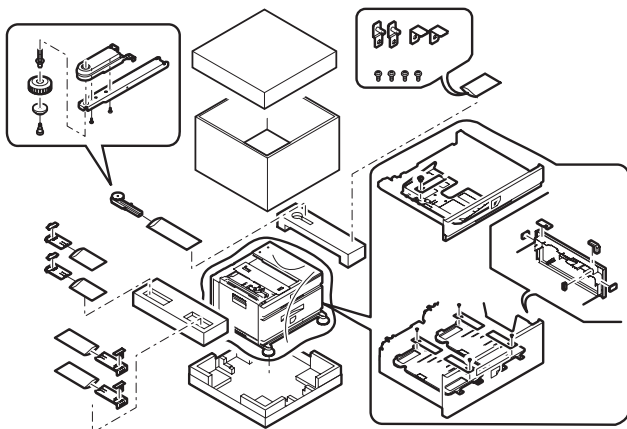
4. Unpacking and installation of the desk unit

Note: In advance to installation of the machine, the paper feed option units (AR-D27/AR-D28/AR-MU2) should have been installed.

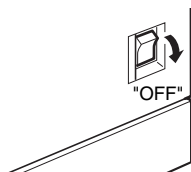
A. AR-D28

<Before installation>

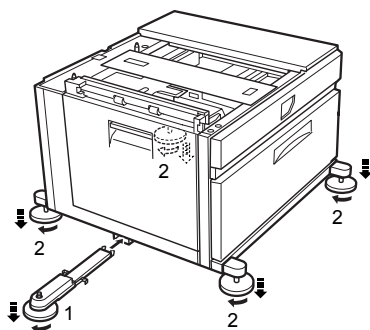
- Start installation after checking that the DATA and COMMUNICATION indicators on the operation panel are neither lit nor blinking.



- Turn off the main switch of the main unit of the printer.
Turn the main switch located on the front side of the printer to the "OFF" position.
Then remove the power plug from the outlet.



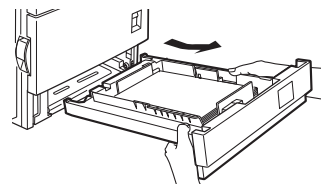
- Attach the adjusters and adjust them.
 - Insert the left adjusters to the stand/paper drawer.
 - Turn the each adjusters to lower them until they touch the floor.



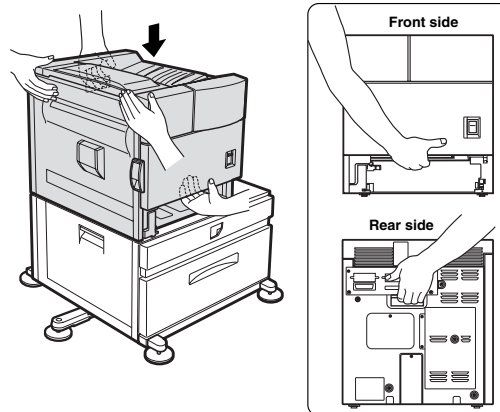
* Be sure to attach the left adjuster to prevent overturning.

Caution: The lower tray cannot be pulled out unless the adjuster is lowered to the specified position.

- Put the main unit of the printer on the stand/paper drawer.
 - Pull out the paper tray of the main unit until it stops and then remove it by lifting both ends of the tray.

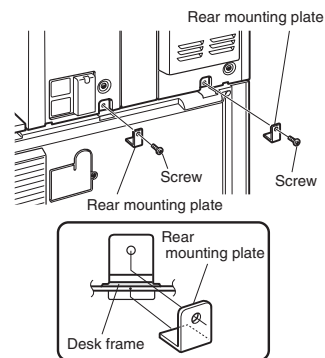


- Hold the main unit of the printer at the positions shown in the illustration and put the main unit on the stand/paper drawer so that the front side and the left side of the main unit are aligned to those of the stand/paper drawer.



Caution: For installation of the main unit, it must be held by two persons and installed without haste.

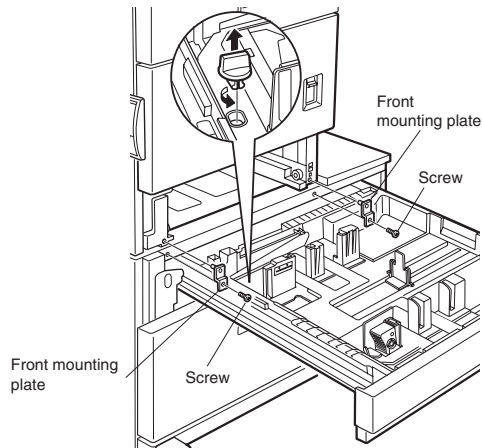
- Connect the main unit to the stand/paper drawer.
 - Attach the rear mounting plates using a supplied screw for each.



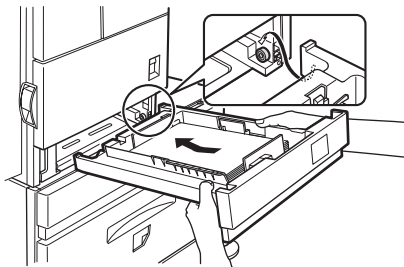
Caution: Insert the rear mounting plates under the desk frame.

<2> Pull out the upper paper tray of the stand/paper drawer until it stops and attach the front mounting plates using a supplied screw for each.

Then, remove the lock of the paper tray and close the tray.

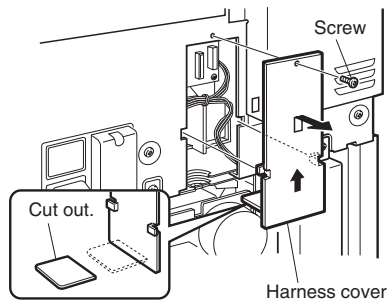


<3> Reattach the paper tray of the main unit.

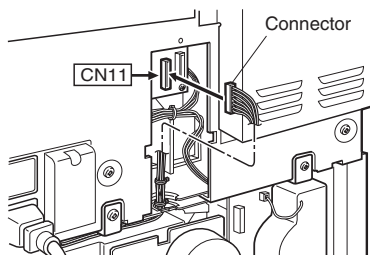


5) Connect the power supply I/F harness to the PCU PWB of the main unit of the printer.

<1> Remove the screw that fixes the harness cover of the main unit of the printer and slide the harness cover up to remove it. Process the harness cover as shown in the illustration.

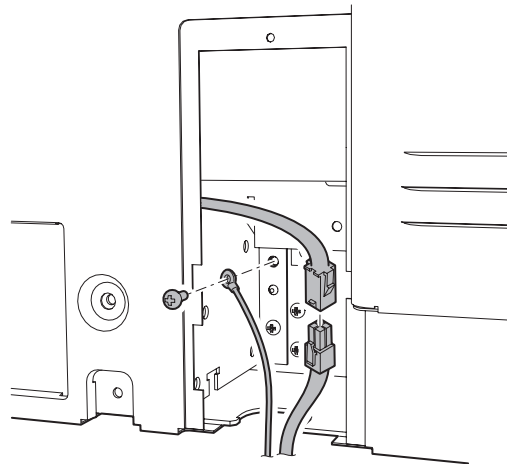


<2> Connect the power supply I/F harness connector (red, 22pin) to CN11 (red connector) of the PCU PWB of the main unit of the printer.



Connect the connector (white, 4pin) of power supply I/F harness to the I/F connector (white, 4pin) of the main unit.

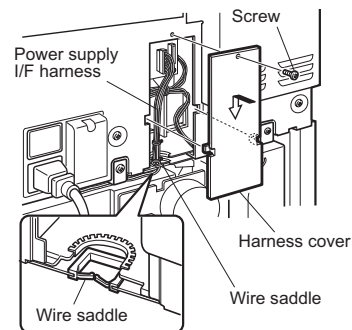
Remove the M4 screw shown in the illustration, insert the circle terminal of ground harness, and it fixes again.



<3> Reattach the power supply I/F harness cover to its original position and fix it with the removed screw.

At this time, ensure that the power supply I/F harness are arranged as shown in the illustration.

- Fix the harness securely to the wire saddle.



6) Attach the paper guides to the lower tray (large capacity tray) and set the size.

Refer to "Setting and adjustment" described later.

* If another peripheral device must be installed, carry out the following step at the end of the installation work.

7) Adjust the position of the paper guides of the upper paper tray of the stand/paper drawer.

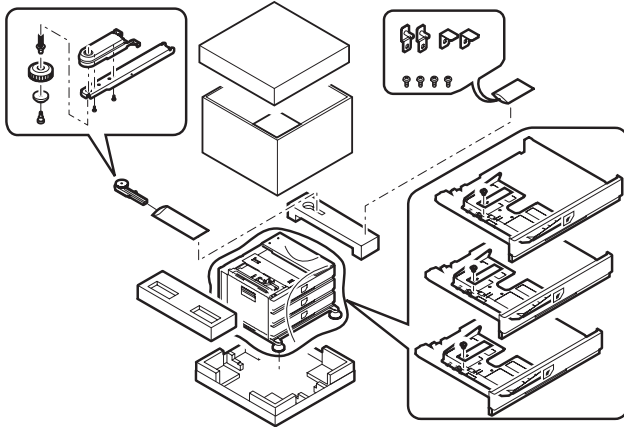
Refer to "Setting and adjustment" described later.

8) Carry out the off center adjustment.

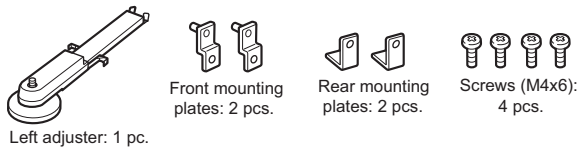
B. AR-D27

<Before installation>

- Start installation after checking that the DATA and COMMUNICATION indicators on the operation panel are neither lit nor blinking.



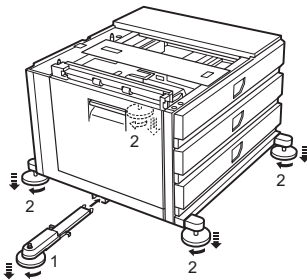
<Parts included>



- Turn off the main switch of the main unit of the printer.
Turn the main switch located on the front side of the printer to the "OFF" position.
Then remove the power plug from the outlet.



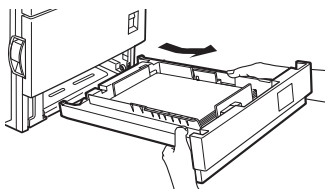
- Attach the adjusters and adjust them.
 - Insert the left adjusters to the stand/paper drawer.
 - Turn the five adjusters to lower them until they touch the floor.



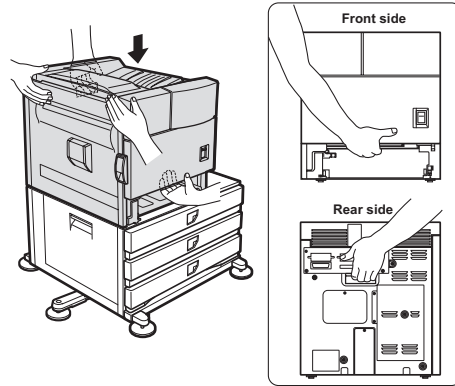
* Be sure to attach the left adjuster to prevent overturning.

Caution: The lower tray cannot be pulled out unless the adjuster is lowered to the specified position.

- Put the main unit of the printer on the stand/paper drawer.
 - Pull out the paper tray of the main unit until it stops and then remove it by lifting both ends of the tray.



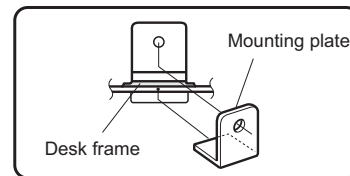
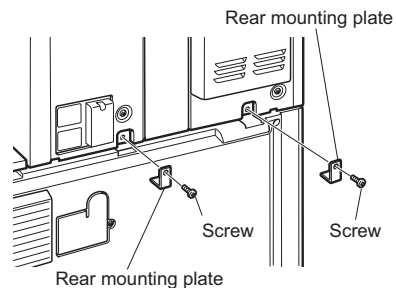
- Hold the main unit of the printer at the positions shown in the illustration and put the main unit on the stand/paper drawer so that the front side and the left side of the main unit are aligned to those of the stand/paper drawer.



Caution: For installation of the main unit, it must be held by two persons and installed without haste.

- Connect the main unit to the stand/paper drawer.

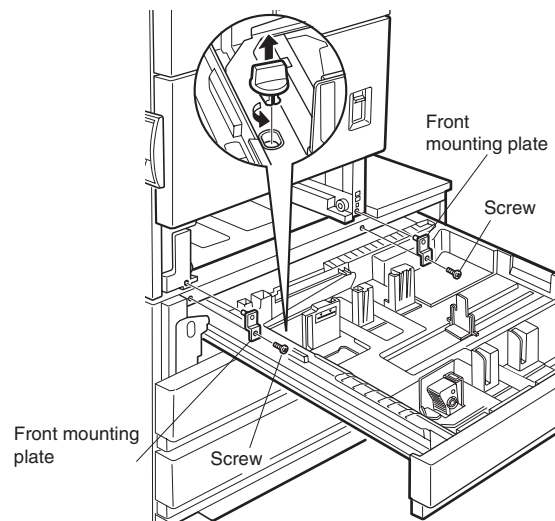
- Attach the rear mounting plates using a supplied screw for each.



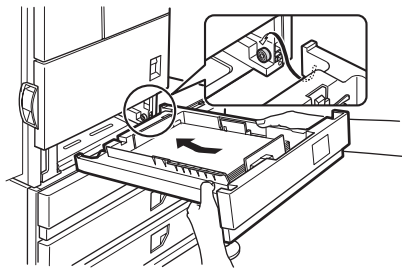
Caution: Insert the rear mounting plates under the desk frame.

- Pull out the upper paper tray of the stand/paper drawer until it stops and attach the front mounting plates using a supplied screw for each.

Then, remove the lock of the paper tray and close the tray.
Remove the locks of the middle tray and the lower tray similarly.

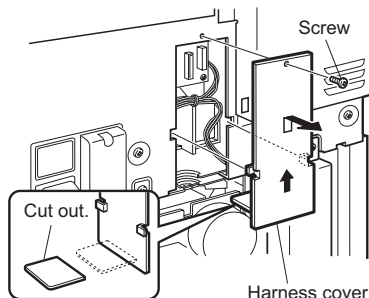


<3> Reattach the paper tray of the main unit.

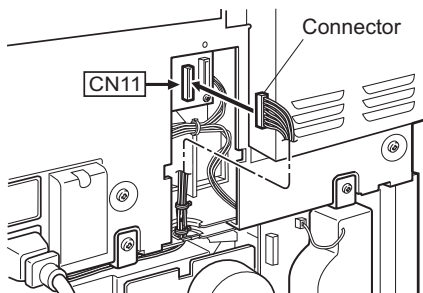


5) Connect the power supply I/F harness to the PCU PWB of the main unit of the printer.

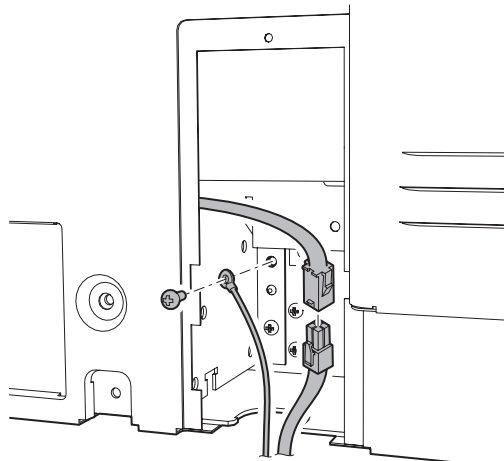
<1> Remove the screw that fixes the harness cover of the main unit of the printer and slide the harness cover up to remove it. Process the harness cover as shown in the illustration.



<2> Connect the power supply I/F harness connector (red, 22pin) to CN11 (red connector) of the PCU PWB of the main unit of the printer.



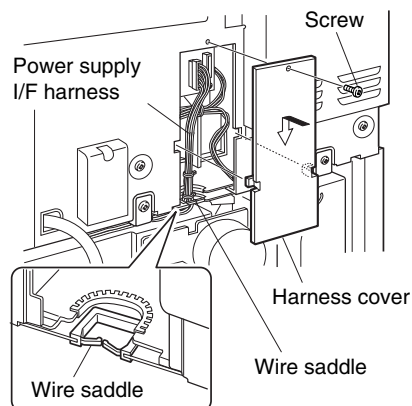
Connect the connector (white, 4pin) of power supply I/F harness to the I/F connector (white, 4pin) of the main unit. Remove the M4 screw shown in the illustration, insert the circle terminal of ground harness, and it fixes again.



<3> Reattach the harness cover to its original position and fix it with the removed screw.

At this time, ensure that the power supply I/F harness is arranged as shown in the illustration.

- Fix the harness securely to the wire saddle.

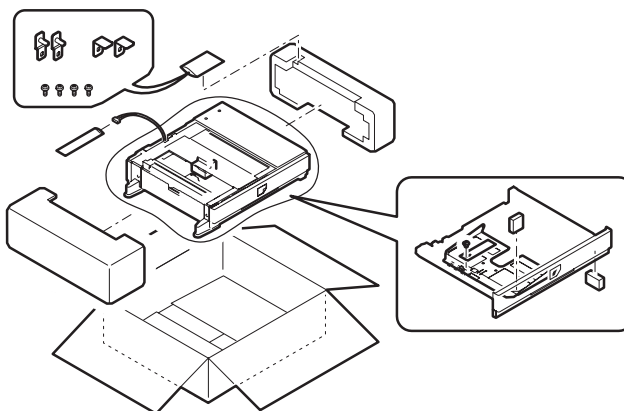


6) Adjust the position of the paper guides of the upper paper tray of the stand/paper drawer.

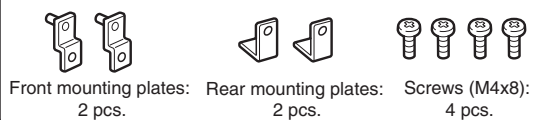
Refer to "Setting and adjustment" described later.

7) Carry out the off center adjustment.

C. AR-MU2



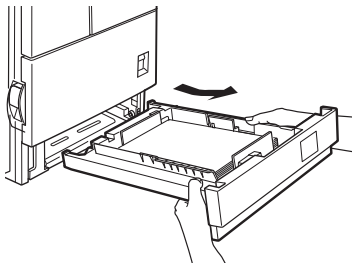
<Parts included>



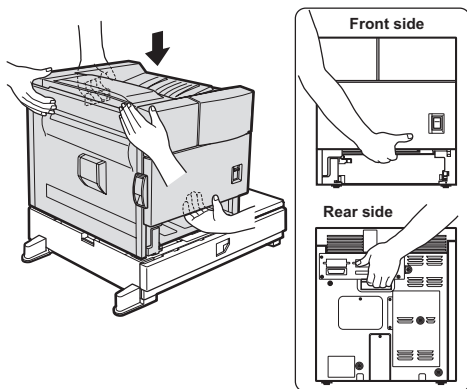
- 1) Turn off the main switch of the main unit of the printer. Turn the main switch located on the front side of the main unit to the "OFF" position. Then, remove the power plug of the main unit from the outlet.



- 2) Put the main unit of the printer on the multi purpose drawer.
- <1> Pull out the paper tray of the main unit until it stops and then remove it by lifting both ends of the tray.



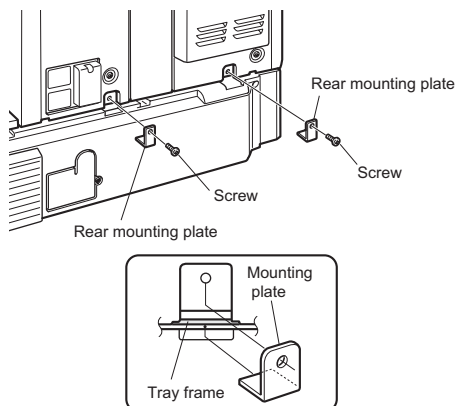
- <2> Hold the main unit of the printer at the positions shown in the illustration and put the main unit on the multi purpose drawer so that the front side and the left side of the main unit are aligned to those of the multi purpose drawer.



Caution: For installation of the main unit, it must be held by two persons and installed without haste.

- 3) Connect the main unit of the printer to the multi purpose drawer.

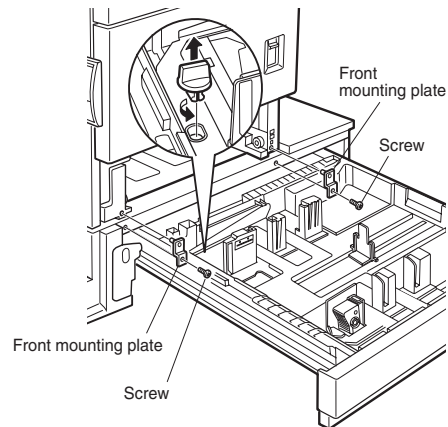
- <1> Attach the rear mounting plates using a supplied screw for each.



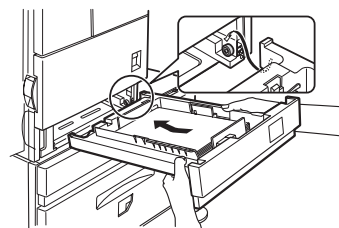
Caution: Insert the mounting plate under the desk frame.

- <2> Pull out the paper tray of the multi purpose drawer until it stops and attach the front mounting plates using a supplied screw for each.

Then, remove the lock of the paper tray and close the tray.

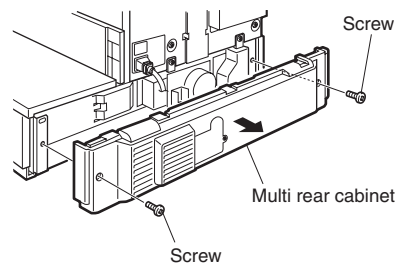


- <3> Reattach the paper tray of the main unit of the printer.

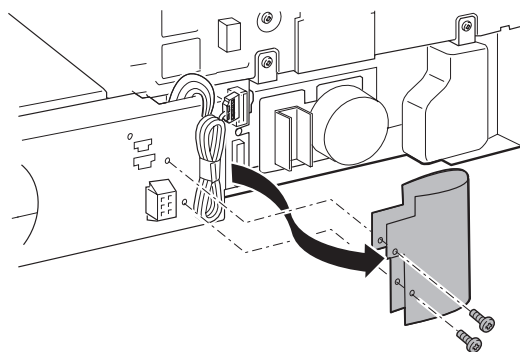


- 4) Remove the multi rear cabinet.

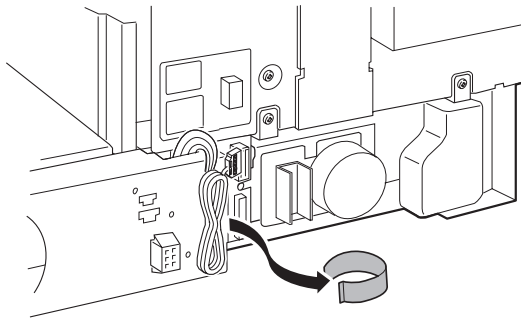
- <1> Remove the two screws that secure the multi rear cabinet.



- <2> Remove the two screws that secure the Harness protection sheet.



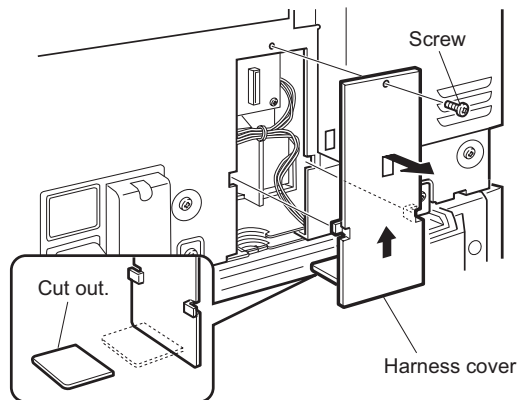
<3> Remove the filament tape that secure the the power supply I/F harness.



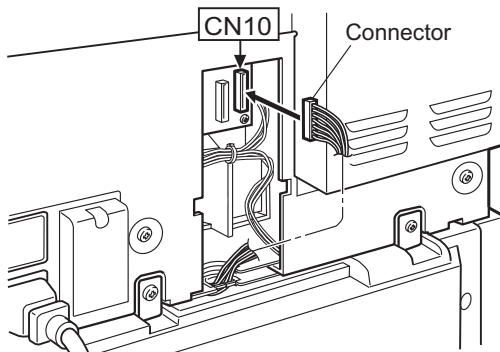
5) Connect the harness to the main unit of the printer.

<1> Remove the screw that fixes the harness cover of the main unit of the printer and then slide the harness cover up to remove it.

Process the harness cover as shown in the illustration.



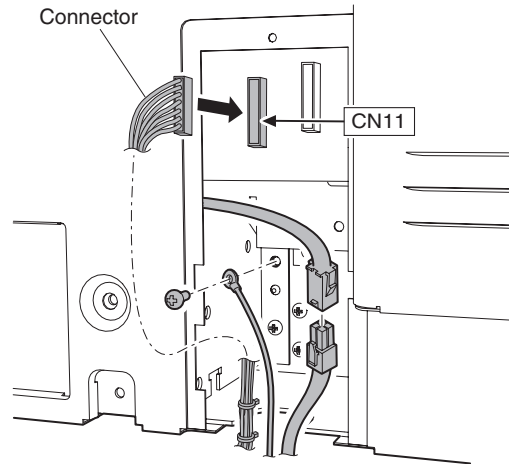
<2> Connect the connector of the relay harness of the multi purpose drawer to the connector of the PCU PWB of the main unit of the printer.



<3> Connect the connector (white, 4pin) of power supply I/F harness to the I/F connector (white, 4pin) of the main unit.

Connect the power supply I/F harness connector (red, 22pin) to CN11 (red connector) of the PCU PWB of the main unit of the printer.

Remove the M4 screw shown in the illustration, insert the circle terminal of ground harness, and it fixes again.



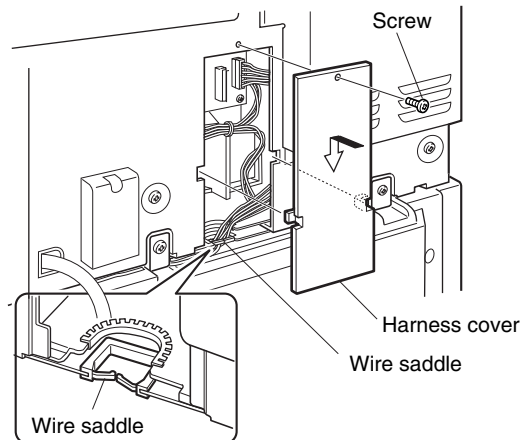
* For installation of a finisher or a mail-bin stacker, see its installation manual.

6) Attach the harness cover.

Reattach the harness cover to its original position and fix it with the removed screw.

At this time, ensure that the power supply I/F harness is arranged as shown in the illustration.

• Fix the harness securely to the wire saddle.



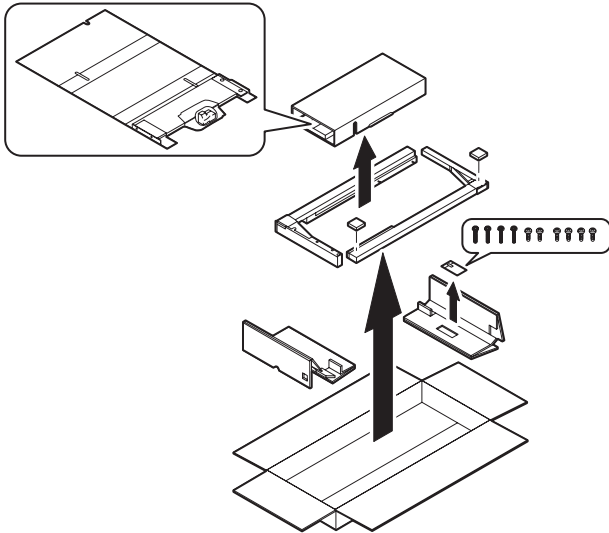
* If another peripheral device must be installed, carry out the following step at the end of the installation work.

7) Adjust the position of the paper guides of the paper tray.

Refer to "Setting and adjustment" described later.

8) Carry out the off center adjustment.

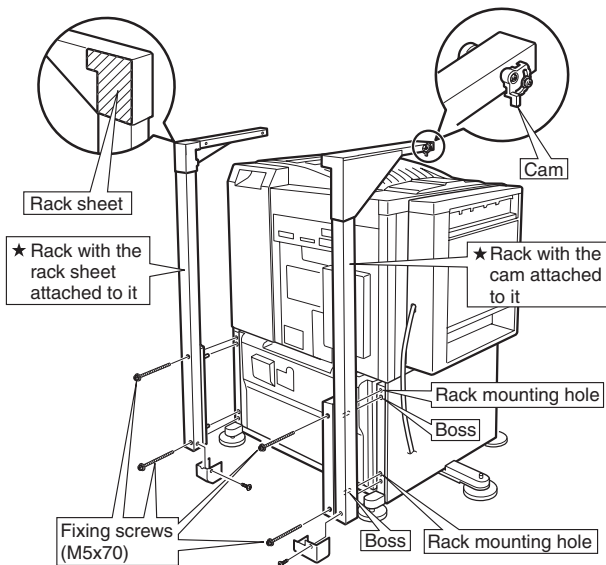
5. Unpacking and installation of the rack (AR-RK2)



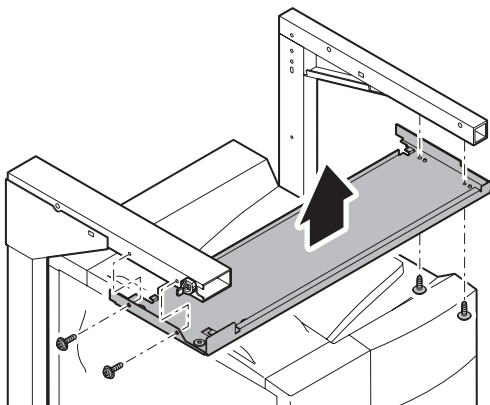
1) Attach the rack to the desk unit.

★ Be sure to identify the left and the right racks. Refer to the figure below.

Insert the rack boss into the rack mounting hole (made by removing the mold of the desk unit), and fix each rack with two fixing screws (M5 x 70).



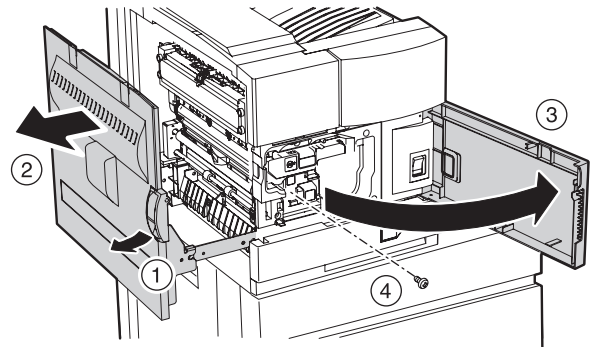
2) Attach the rack bottom plate.



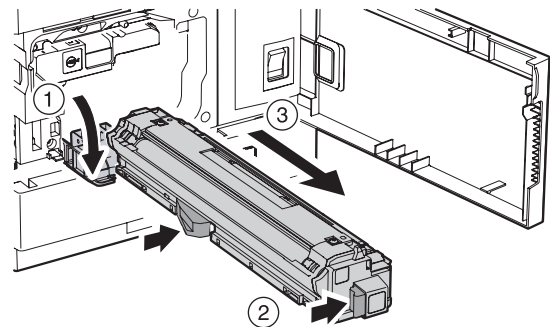
6. Machine installing procedure

A. Setting related to process

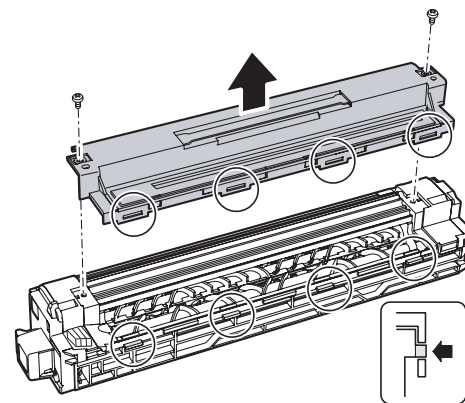
1) Open the left door and the front door, and remove the blue screw in the developer cartridge section.



2) Remove the developer cartridge from the machine.



3) Remove the top cover of the developer cartridge.

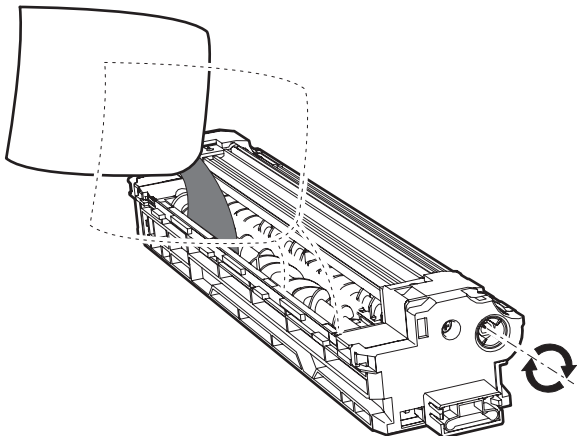


- 4) While rotating the MG roller, supply developer into the developer cartridge evenly.

Note that the MG roller must be rotated in the arrow direction as shown in the figure below.

Use of a metal scale or a screwdriver (-) facilitates the procedure.

Note: Before opening the developer seal, shake it 4 or 5 times.

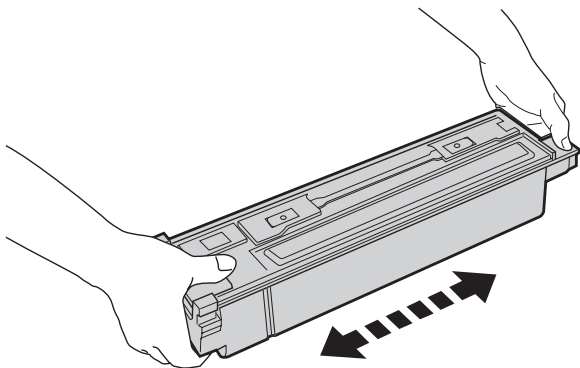


- 5) Attach the top cover to the developer cartridge and install the cartridge to the machine.

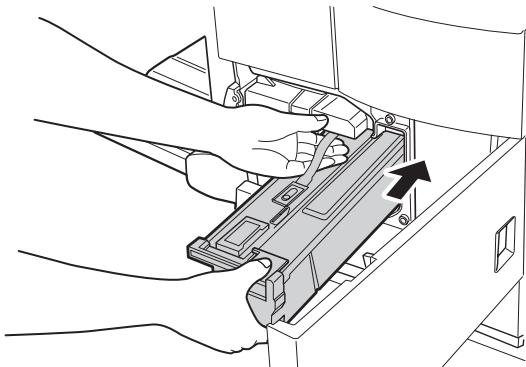
* After installing the machine, fix it with the blue screw.

B. Toner cartridge settings

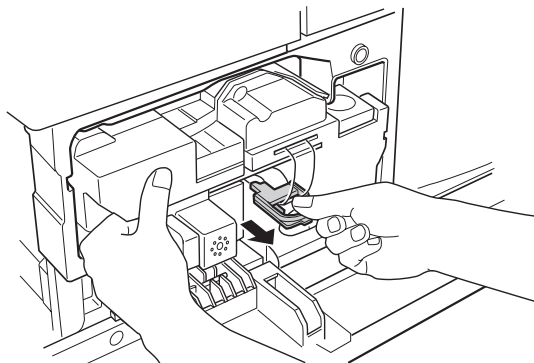
- 1) Remove a new toner cartridge from the package and shake it horizontally five or six times.



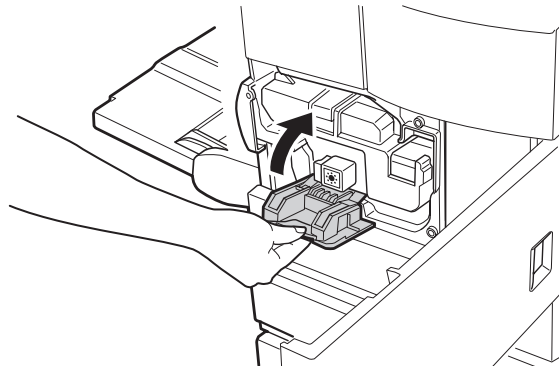
- 2) Insert a new toner cartridge.
Push the cartridge in until it locks securely into place.



- 3) Gently remove the sealing tape from the cartridge.

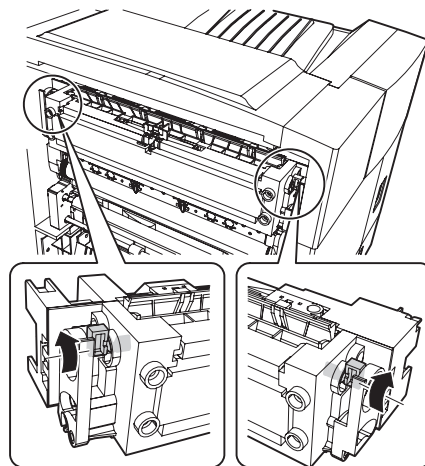


- 4) Return the cartridge lock lever.



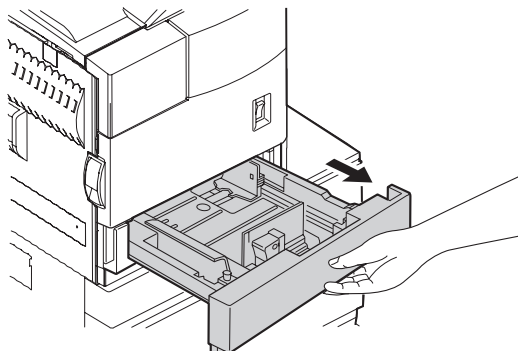
C. Setting related to fusing

- 1) Put down the right and the left levers of the fusing unit in the arrow direction.

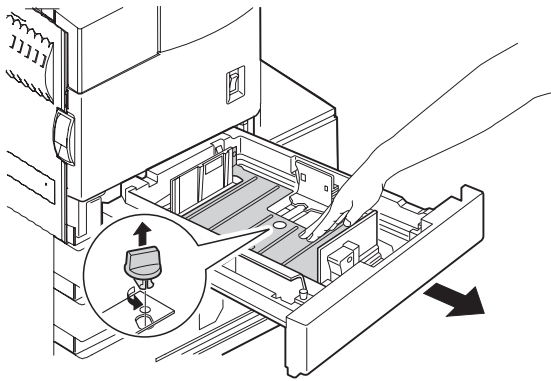


D. Paper setting

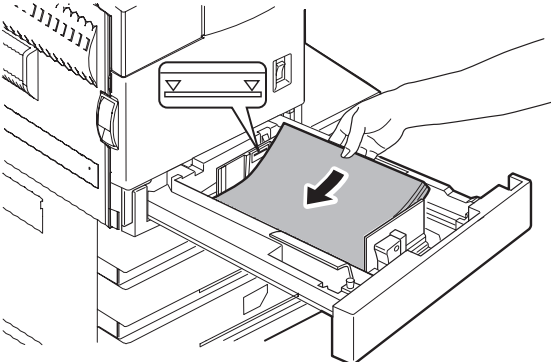
- 1) Pull out the first stage paper feed tray.
Slowly pull out the tray until it stops.



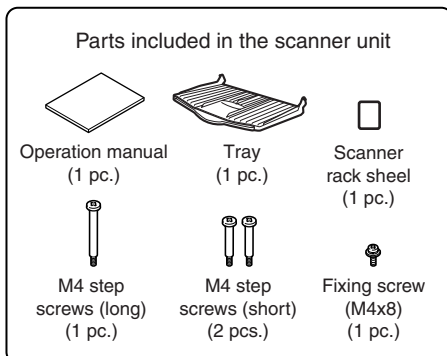
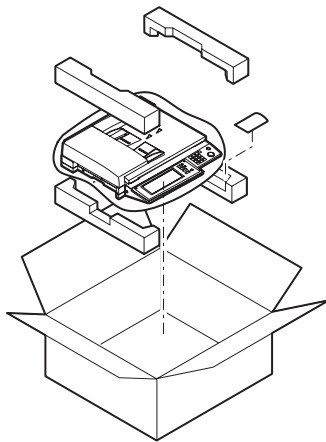
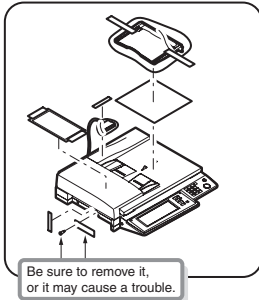
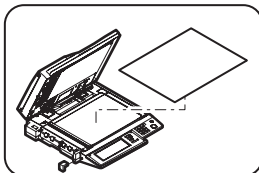
- 2) While pressing the paper holding plate, remove the fixing pin.



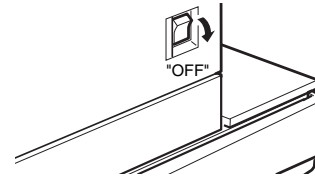
- 3) Put paper in the tray, and close the paper feed tray.



7. Unpacking and installation of the MX-EFX1

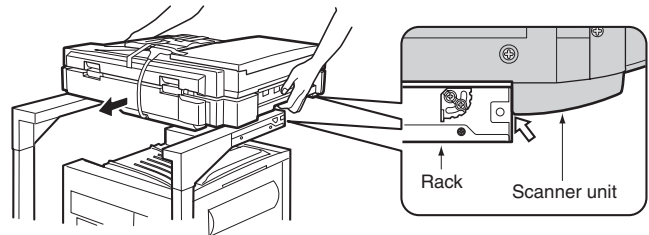


- 1) Turn off the main switch of the main unit of the printer.
Turn the main switch located on the front side of the printer to the "OFF" position.
Then remove the power plug from the outlet.



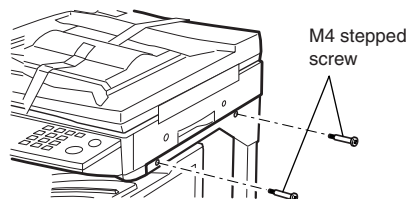
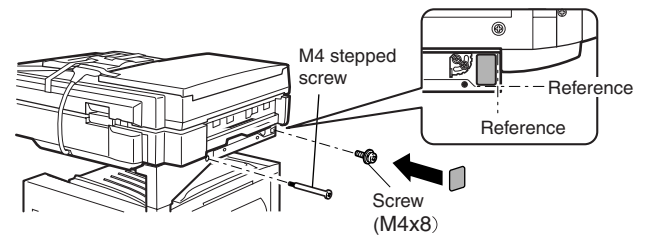
- 2) Put the scanner unit on the rack.

Hold the handle of the scanner unit, and put the scanner unit on the rack from the front side of the rack as shown in the figure. Slowly slide the scanner unit until it is brought into contact with the rack and stopped.



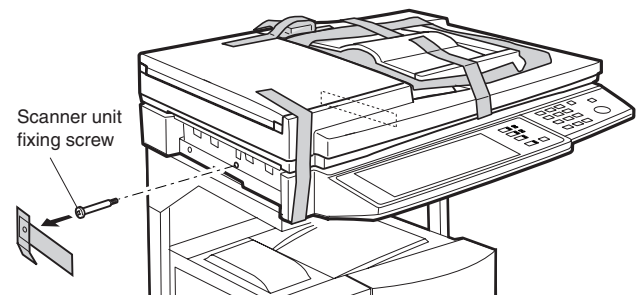
- 3) Fix the scanner unit.

Fix the scanner unit which is on the rack with the fixing screw (M4 x 8), and fix it to the rack with the M4 step screw (long, short x 2).



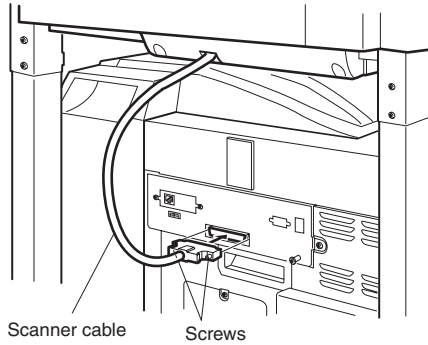
- 4) Remove the fixing tape for scanner packing and remove the fixing screw.

Remove the pack fixing tape and the fixing screws which are fixing the scanner unit, and remove the packing note.



- 5) Connect the cable.

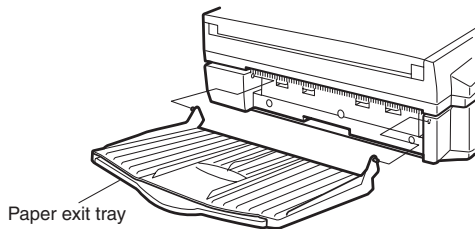
Connect the scanner unit connector with the printer connector, and fix the connectors with two screws attached to the connector.



Note: When inserting the connector, be careful not to break the pins, and connect according to the guide.

- 6) Attach the paper exit tray.

Attach the paper exit tray to the scanner unit as shown in the figure.



8. Automatic developer adjustment

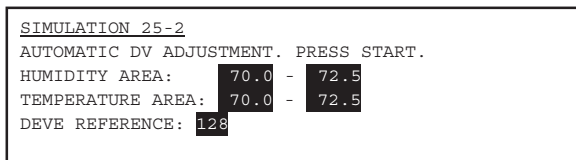
- 1) Attach the cabinets which were removed.
- 2) Close the left door.

At that time, keep the front door open.

Note: The automatic developer adjustment must be performed by entering the simulation mode with the front door open. If the power is turned on with the front door closed, warm-up is performed to supply toner to the developing unit. As a result, the reference toner density cannot be obtained.

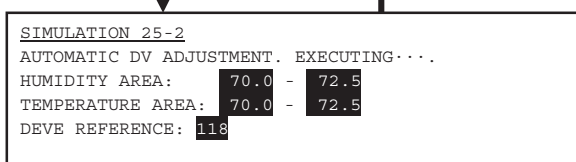
- 3) Insert the power plug into the power outlet.
- 4) Enter simulation 25-2.
- 5) Close the front door.

(LCD Display)



Press [START] key.

Press [SYSTEM SETTINGS] key, and the operation is stopped immediately or after 2 min.



- 6) Press the [START] key, and the automatic developer adjustment will be performed.

During execution of the automatic developer adjustment, "EXECUTING..." is displayed and the toner sensor value is indicated on the LCD. (DEVE REFERENCE)

- 7) After about 2 min, the adjustment value is stored in the machine. Check that the mode was normally completed.

Normal end: Returns to the initial window (PRESS START display).

Abnormal end: Returns to the initial window (PRESS START display), and indicates the trouble display (TROUBLE! EE-**).

In case of an error end, remove the cause of the error, and execute the automatic developer adjustment again.

- 8) Turn off/on the power, and the machine returns to the normal mode and enters the warm-up mode.

9. Print test

- 1) After completion of warm-up (normal mode), select [SYSTEM SETTINGS] → [Data list up] to display the menu.
- 2) Print [ALL SETUP LIST] to check and confirm the print quality.
- 3) Press the [SYSTEM SETTINGS] key again to return to the normal menu.

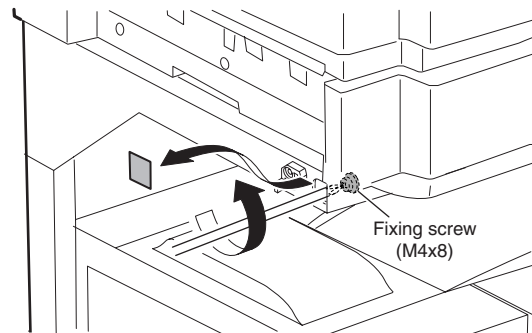
10. Distortion adjustment

Note: This adjustment must be performed after installing the machine and its peripheral devices.

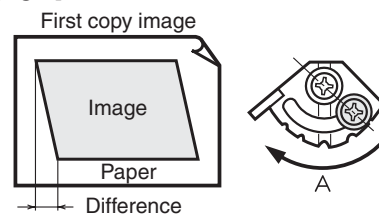
There is basically no need because it has been made prior to shipping. If there should be a distortion as shown in the figure below, perform the adjustment according to the following procedures.

- 1) Use a level gauge to check to confirm that the scanner unit is installed horizontally.

Make a copy, and if any distortion is found as shown in Fig 1 or Fig. 2, loosen the scanner fixing screw (M4 x 8) and the cam A fixing screw (M3 x 12) to make an adjustment.



[Fig. 1]

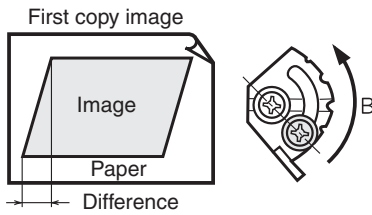


• Case of Fig. 1

Shift the cam A in the direction of A by the difference of the image. For one scale (one groove), shift by 0.5mm.

After shifting the cam, tighten the cam A fixing screw (M3 x 12). Make a copy again and check to confirm that there is no distortion on the image.

[Fig. 2]



• **Case of Fig. 2**

Shift the cam A in the direction of B by the difference of the image.
For one scale (one groove), shift by 0.5mm.

After shifting the cam, tighten the cam A fixing screw (M3 x 12).
Make a copy again and check to confirm that there is no distortion on the image.

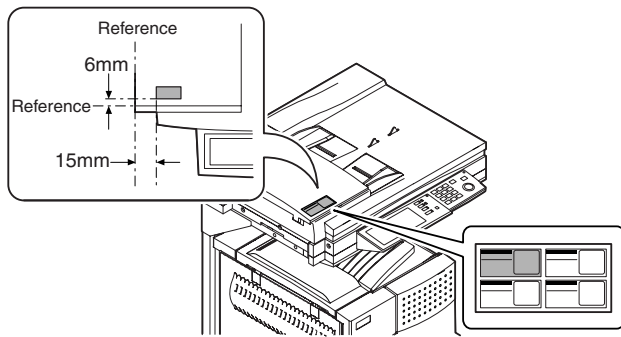
After adjustment, tighten the fixing screw (M3 x 12) and the scanner fixing screw (M4 x 8).

Attach the decoration seal to the screw hole.

(DSPF scan position automatic adjustment)

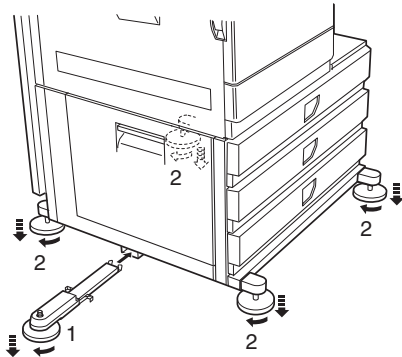
- 1) Execute SIM 53-8 after completion of the distortion adjustment.
- 2) If any distortion is made after execution of the simulation, execute the MB rail position adjustment. (Refer to "3-A OC scan distortion adjustment (MB-B rail height adjustment)" in [8] ADJUSTMENTS.)

11. Attach the document scanning label



12. Adjuster installation and adjustment

- 1) Insert the left adjuster into the paper feed desk.
- 2) Turn each adjuster until it is brought into contact with the floor.

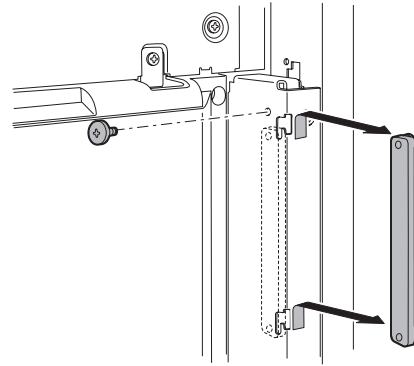


* Be sure to install the left adjuster in order to prevent falling down of the machine.

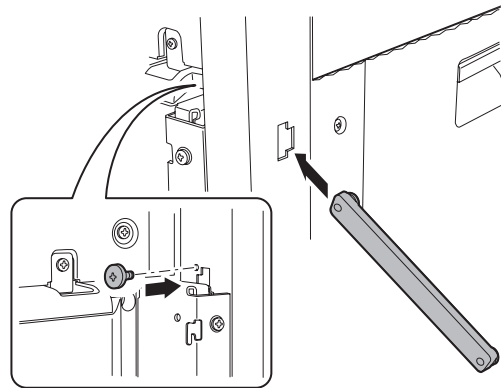
Note: If the adjusters are not lowered to the specified positions, the lower stage tray cannot be pulled out.

13. Using the transport handle

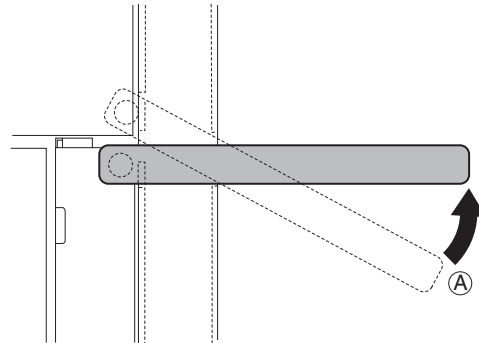
- 1) Remove the screw, and remove the handle.



- 2) Insert the handle into the left rack notch diagonally upward as shown in the figure.
- 3) Attach the screw which was removed in procedure 1) to secure the handle.



- 4) Lift the rear edge ① of the handle to engage the head with the rack.



- 5) After completion of transport, restore the handle to the original position.

[7] MAINTENANCE AND DETAILS OF EACH SECTION

- Self print of set values

Use of SIM 22-6 allows to print the set values and the jam history of the machine.

These values must be printed before execution of maintenance or disassembly procedures.

- When assembling, check that the flat cable and the harness connectors are securely connected.

- When connecting the flat cable, be careful not to break the pins. When installing the PWB unit and the memory module, use a Ground Strap to prevent damage caused by electrical discharge.

[Maintenance System Table]

1. Engine section

Maintenance cycle : 200K

× Check (Clean, replace, or adjust as necessary.) ○ Clean

▲ Replace

△ Adjust

☆ Lubricate

□ Move position

Unit name	Part name	When calling	100K	200K	300K	400K	500K	600K	700K	800K	Remark
Drum peripheral	Drum		×	▲	×	▲	×	▲	×	▲	
	Cleaner blade		×	▲	×	▲	×	▲	×	▲	Replace at 200K or 1 year. P/G No.: [10]-49
	Toner reception seal		×	▲	×	▲	×	▲	×	▲	P/G No.: [10]-42
	Side molt F		×	▲	×	▲	×	▲	×	▲	P/G No.: [10]-33
	Side molt R		×	▲	×	▲	×	▲	×	▲	P/G No.: [10]-37
	Transfer roller	×	×	▲	×	▲	×	▲	×	▲	P/G No.: [5]-8
	Discharge plate	×	×	▲	×	▲	×	▲	×	▲	P/G No.: [5]-2
	TR bearing (F/R)		×	×	×	▲	×	×	×	▲	P/G No.: [5]-9, 18
	Transfer roller collar		×	×	×	▲	×	×	×	▲	P/G No.: [5]-10
	After-transfer star ring		×	×	×	×	×	×	×	×	P/G No.: [5]-19
	TR gear	×	×	▲	×	▲	×	▲	×	▲	P/G No.: [5]-15
	Drum separation pawl unit		×	▲	×	▲	×	▲	×	▲	P/G No.: [5]-501
	MC unit	×	○	▲	○	▲	○	▲	○	▲	Includes the screen grid, the charging plate, and the MC cleaner. ○: Charging plate cleaning by the MC cleaner P/G No.: [9]-901
Developing section	Paper guide	○	○	○	○	○	○	○	○	○	
	Developer		▲	▲	▲	▲	▲	▲	▲	▲	Supplied when installing
	DV blade		×	▲	×	▲	×	▲	×	▲	P/G No.: [11]-55
	DSD collar		○	○	○	○	○	○	○	○	
	DV side seal F		×	▲	×	▲	×	▲	×	▲	P/G No.: [11]-38
	DV side seal R		×	▲	×	▲	×	▲	×	▲	P/G No.: [11]-43
Fusing section	Toner cartridge		—	—	—	—	—	—	—	—	Attached when installing./ 750g, user replacement for every 35K.
	Upper heat roller	×	×	▲	×	▲	×	▲	×	▲	P/G No.: [7]-46
	Lower heat roller	×	×	▲	×	▲	×	▲	×	▲	P/G No.: [7]-22
	Upper separation pawl	○	○	▲	○	▲	○	▲	○	▲	P/G No.: [7]-3
	Lower separation pawl	○	○	▲	○	▲	○	▲	○	▲	P/G No.: [7]-41
	Thermistor	×	×	×	×	×	×	×	×	×	Clean and remove paper dust.
	Upper heat roller gear		×	▲	×	▲	×	▲	×	▲	P/G No.: [7]-47
	Paper guides	○	○	○	○	○	○	○	○	○	
	Gears		☆	☆	☆	☆	☆	☆	☆	☆	
Filters	CL roller	×	×	▲	×	▲	×	▲	×	▲	P/G No.: [7]-52
	CL roller bearing	×	×	▲	×	▲	×	▲	×	▲	P/G No.: [7]-53
Paper feed section	Ozone filter		▲	▲	▲	▲	▲	▲	▲	▲	P/G No.: [12]-2
	Pick-up roller	×	×	×	×	×	×	×	×	×	Note 1
	Paper feed roller	×	×	×	×	×	×	×	×	×	Note 1
	Separation roller	×	×	×	×	×	×	×	×	×	Note 1
Transport section Paper exit reverse section	Torque limiter	×	×	×	×	×	×	×	×	×	Note 1
	Resist roller	×	○	○	○	○	○	○	○	○	
	Transport rollers	×	○	○	○	○	○	○	○	○	
	Transport paper guides	○	○	○	○	○	○	○	○	○	
	Paper dust remover unit	○	○	▲	○	▲	○	▲	○	▲	P/G No.: [14]-51
Drive section	Optical reflection sensor	○	○	○	○	○	○	○	○	○	PS roller unit section
	Gears (Specified position)	×	☆	☆	☆	☆	☆	☆	☆	☆	
Image quality	Belts	×	×	×	×	×	×	×	×	×	
		×	×	×	×	×	×	×	×	×	
Other	Sensors		×	×	×	×	×	×	×	×	Clean with air.

Note 1: Replacement reference: Use the counter value of each paper feed port as the replacement reference.

Paper feed roller/Separation pad/Torque limiter section (Include Desk, Multi purpose): 100K or 1 year

2. Scanner / DSPF

Maintenance cycle : 200K

× Check (Clean, replace, or adjust as necessary.) ○ Clean

▲ Replace

△ Adjust

☆ Lubricate

□ Move position

Unit name	Part name		When calling	100K	200K	300K	400K	500K	600K	700K	800K	Remark
Optical section	Mirror/Lens/Reflector/Sensors		○	○	○	○	○	○	○	○	○	
	Table glass/Dust-proof glass/OC		○	○	○	○	○	○	○	○	○	
	White reference glass		○	○	○	○	○	○	○	○	○	
	Rails			☆	☆	☆	☆	☆	☆	☆	☆	
	Drive belt/Drive wire/Pulley			×	×	×	×	×	×	×	×	
DSPF	Paper feed section	Pick-up roller	○	○	○	○	○	○	○	○	○	Note 2
		Paper feed roller	○	○	○	○	○	○	○	○	○	Note 2
		Separation mylar lower	○	○	○	○	○	○	○	○	○	Note 2
		Separation pad	○	○	○	○	○	○	○	○	○	Note 2
	Transport section	PS roller	○	○	○	○	○	○	○	○	○	
		Exposure section (Dust-proof glass)	○	○	○	○	○	○	○	○	○	
	Paper exit section	Paper exit roller	○	○	○	○	○	○	○	○	○	
	Other	Sensors		○	○	○	○	○	○	○	○	Clean with air.

Note 2: Replacement reference: Replace by using the SPF counter value as an indication.

Paper feed section pickup roller, paper feed roller, separation pad, separation lower mylar lower:
100K or 1 year

3. Peripheral devices

Maintenance cycle : 50K

× Check (Clean, replace, or adjust as necessary.) ○ Clean

▲ Replace

△ Adjust

☆ Lubricate

□ Move position

Option name	Part name		When calling	100K	200K	300K	400K	500K	600K	700K	800K	Remark
Finisher	Transport section	Transport rollers	○	○	○	○	○	○	○	○	○	
		De-curler roller	(○)×	○	○	○	○	○	○	○	○	
		Transport paper guides	×	○	○	○	○	○	○	○	○	
	Drive section	Gears	×	☆	☆	☆	☆	☆	☆	☆	☆	(Specified position)
		Belts	×	×	×	×	×	×	×	×	×	
	Other	Sensors	×	×	×	×	×	×	×	×	×	
		Discharge brush	×	×	×	×	×	×	×	×	×	
	Staple unit											Replace unit at 200K staple.
	Staple cartridge											User replacement for every 3000 pcs.
Mail-bin stacker	Transport section	Transport rollers	×	○	○	○	○	○	○	○	○	
		Transport paper guides	×	○	○	○	○	○	○	○	○	
	Drive section	Gears	×	☆	☆	☆	☆	☆	☆	☆	☆	(Specified position)
		Belts	×	×	×	×	×	×	×	×	×	
	Other	Sensors	×	×	×	×	×	×	×	×	×	
		Discharge brush	×	×	×	×	×	×	×	×	×	
Saddle finisher, punch unit	Transport section	Transport rollers	×	○	○	○	○	○	○	○	○	
		Transport paper guides	×	○	○	○	○	○	○	○	○	
	Drive section	Gears	×	☆	☆	☆	☆	☆	☆	☆	☆	(Specified position)
		Belts	×	×	×	×	×	×	×	×	×	
	Other	Sensors	×	×	×	×	×	×	×	×	×	
		Discharge brush	×	×	×	×	×	×	×	×	×	
	Staple unit											Replace unit at 300K staple.
	Staple cartridge											User replacement for every 5000 pcs.
ADU + Manual feed	Punch unit											Replace unit at 1000K.
	Paper feed separation section	Paper feed rollers	(○)×	(○)×	(○)×	(○)×	(○)×	(○)×	(○)×	(○)×	(○)×	Note 3
	Transport section	Transport rollers	×	○	○	○	○	○	○	○	○	
		Transport paper guides	×	○	○	○	○	○	○	○	○	
	Drive section	Gears	×	☆	☆	☆	☆	☆	☆	☆	☆	(Specified position)
		Belts	×	×	×	×	×	×	×	×	×	
	Other	Sensors	×	×	×	×	×	×	×	×	×	

Note 3: Replacement reference: Use the counter value of each paper feed port as the replacement reference.

Paper feed section pickup roller, paper feed roller, separation pad: 100K or 1 year

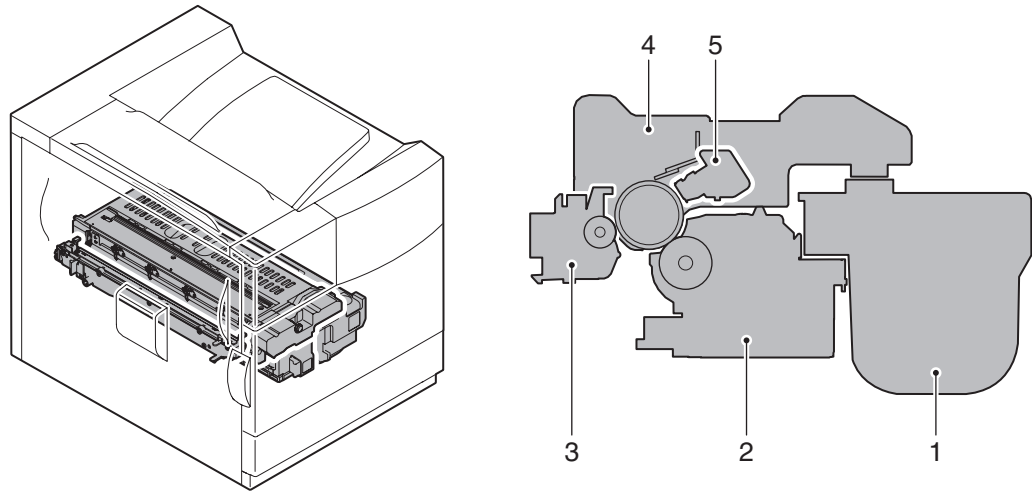
[DETAILS OF EACH SECTION]

1. Process section

A. General

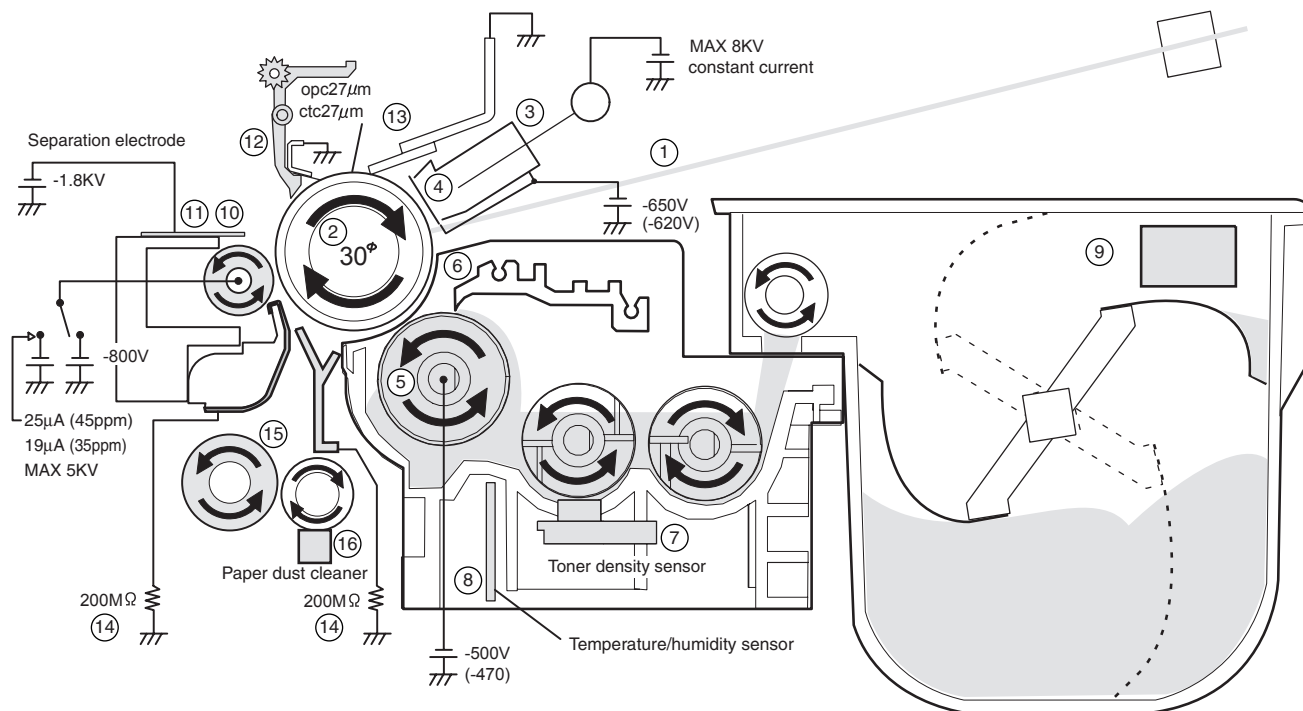
Toner is attached to electrostatic latent images formed by the laser beams which were radiated to the OPC drum charged by the main charger, forming toner images.

The toner images formed on the OPC drum are transferred to paper by the transfer roller.



No.	Name	Operation
1	Toner cartridge	Supplies toner to the developing unit, and collects waste toner.
2	Developer unit	Mixes toner and carrier, and attaches toner to electrostatic latent images to form visible images.
3	Transfer roller	Transfers toner to the paper.
4	Process drum unit	The electrostatic image formed by the laser on the drum comes in contact with the developer to form the visible image on the OPC drum.
5	Main charger unit	Charges the drum evenly with a negative charge.

Process Section Composition and Applying Voltage



Composition of process section

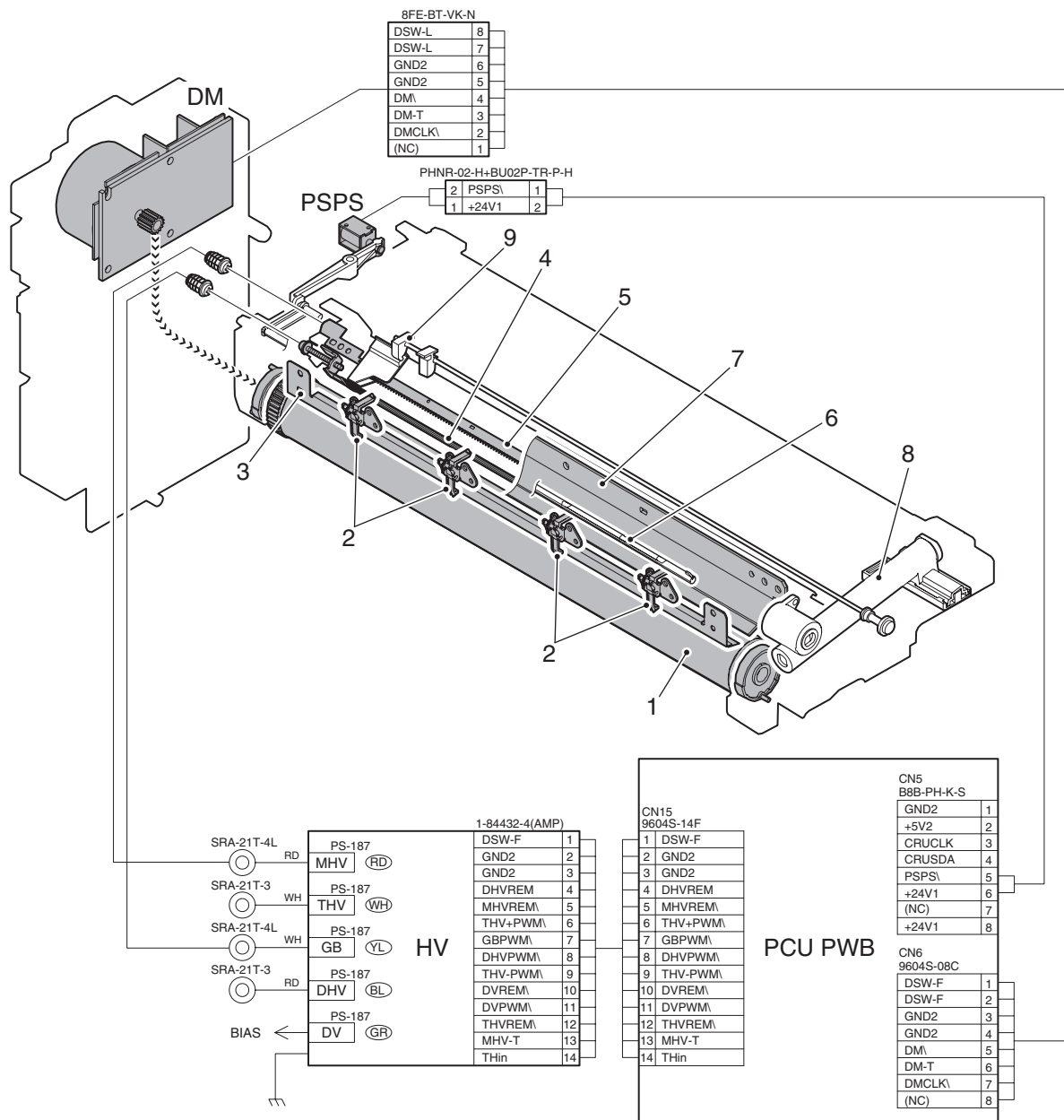
1	Laser beam	Forms latent electrostatic images on the photoconductor drum. (Writing resolution: 600dpi) The output from LSU can be set with the simulation. (Basically the initial setup is used.)
2	Photoconductor drum	Latent electrostatic images are formed on the photoconductor drum. It attracts toner to the electrostatic images and transfers them to paper. An OPC drum of 30mm diameter is employed.
3	Main charger	Applies a high voltage to charge the OPC drum. Of saw teeth type.
4	Screen grid	Charges electric charges generated from the main charger to the OPC drum evenly. -650V, 35cpm Copy, -620V only for AE.
5	MG roller	Forms a magnetic brush with developer and puts toner on the OPC drum. -500V, 35cpm Copy, -470V only for AE.
6	Developing doctor	Keeps the thickness of developer and toner (magnetic brush) on the MG roller at a constant level.
7	Toner quantity sensor	Detects the quantity of toner in the developing unit. A magnetic sensor of transmission type is employed.
8	Temperature/humidity sensor	The temperature and the humidity inside the machine are detected, and process control is performed according to the detected temperature and humidity.
9	CRUM-IC	Toner cartridge conditions (destination, toner motor rotating time, empty, near empty, etc.)
10	Transfer roller	Applies a voltage to transfer toner on the OPC drum to paper.
11	Separation electrode	The electrode to separate paper from the OPC drum by the potential difference.
12	Drum separation pawl	The pawl to separate paper from the OPC drum mechanically.
13	Cleaning blade	Made of silicon rubber. Removes remaining toner from the OPC drum. Always in contact with the drum.
14	High voltage resistor PWB	Prevents a high voltage from leaking through the paper guide at a high humidity. 200MΩ each.
15	Resist roller	Bends paper to adjust the paper feed timing to the process section.
16	Paper dust cleaner	Removes paper dust from the resist roller to reduce mixing of paper dusts into the process section.

[OPC drum section]

A. General

In this section the laser beam expose's the drum. The latent image is formed on the OPC drum. Then is sent to the development unit.

B. Major parts and signal functions



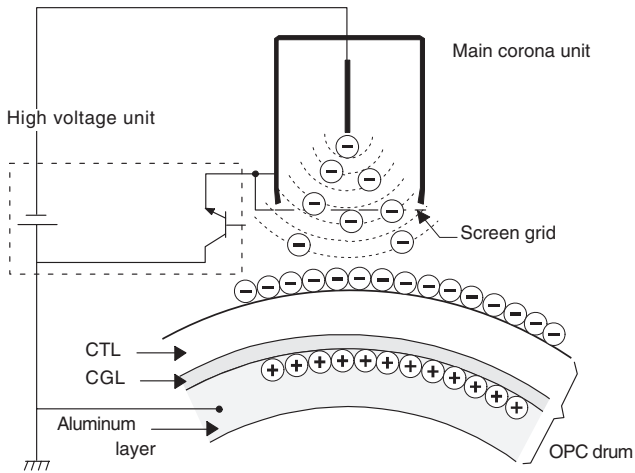
Code	Signal name	Name	Function/Operation	Type	Note
DM	DM	OPC drum motor	Drives the OPC drum and the transfer section.	DC brushless motor	
PSPS	PSPS	Drum separation pawl solenoid	Drives the OPC drum separation pawl	Solenoid	

No.	Name	Operation
1	OPC drum	Forms electrostatic latent images by laser beams.
2	Drum separation pawl	Separates paper from the drum.
3	Sub blade (Cleaning seal)	Prevents against toner leakage from the cleaner section.
4	Screen grid	Helps to charge the OPC drum evenly with electric charges provided from the main charger.
5	Saw-teeth charger	Applies a high voltage to charge the OPC drum.
6	Separation pawl oscillation shaft	Moves in the front and rear frame direction to install the separation pawl.
7	Cleaning blade	Cleans remaining toner on the OPC drum.
8	Waste toner transport pipe	Transports toner from the cleaner unit to the waste toner box in the toner cartridge front section.
9	Cleaning unit	Saw teeth charger is cleaned.

C. Operational descriptions

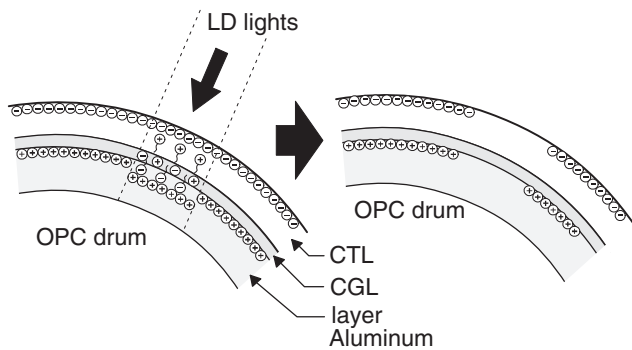
The OPC drum surface is negatively charged by the main charger. The laser beam images are radiated to the OPC drum surface by the laser unit to form latent electrostatic images.

- 1) The OPC drum surface is negatively charged by the main charger.



The main charger grid is provided with the screen grid. The OPC drum is charged at a voltage virtually same as the voltage applied to the screen grid.

- 2) LD lights are radiated to the OPC drum surface by the laser unit to form latent electrostatic images.



When LD lights are radiated to the OPC drum CGL, negative and positive charges are generated.

Positive charges generated in CGL are attracted to the negative charges on the OPC drum surface. On the other hand, negative charges are attracted to the positive charges in the OPC drum aluminum layer.

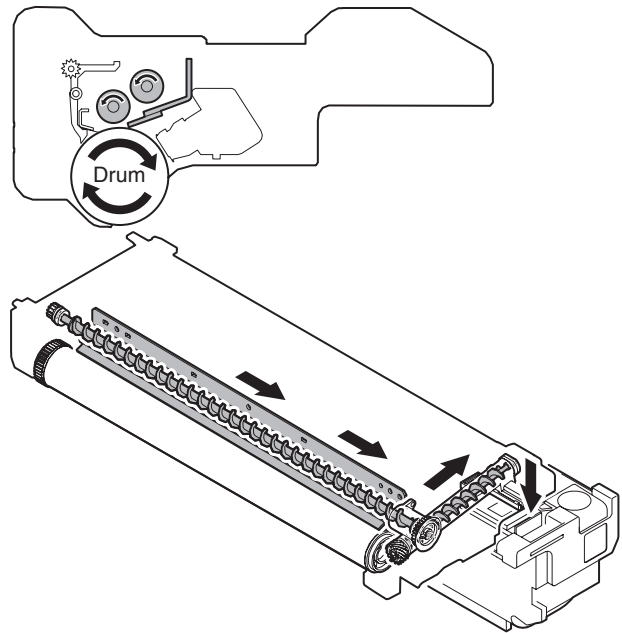
Therefore, positive charges and negative charges are balanced out on the OPC drum and in the aluminum layer, reducing positive and negative charges to decrease the OPC drum surface voltage.

Electric charges remain at a position where LD lights are not radiated.

As a result, latent electrostatic images are formed on the OPC drum surface.

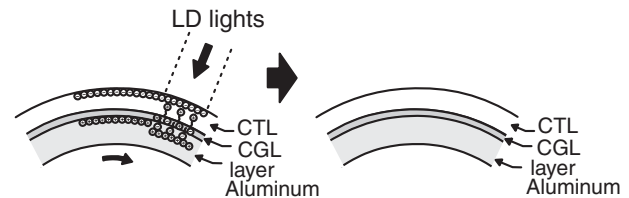
- * OPC: Organic Photo Conductor
- * CTL: Charge Transfer Layer
- * CGL: Charge Generation Layer

- 3) After transfer operation, remaining toner is removed by the cleaning blade.



Residual toner removed from the OPC drum surface is transported to the recycle toner collection section in the toner cartridge by the waste toner transport screw.

- 4) All the surface of the OPC drum is discharged by laser beams.



After completion of the job, laser beams are radiated onto all the surface of the OPC drum.

When laser beams are radiated onto the CGL of the OPC drum, positive and negative charges are generated.

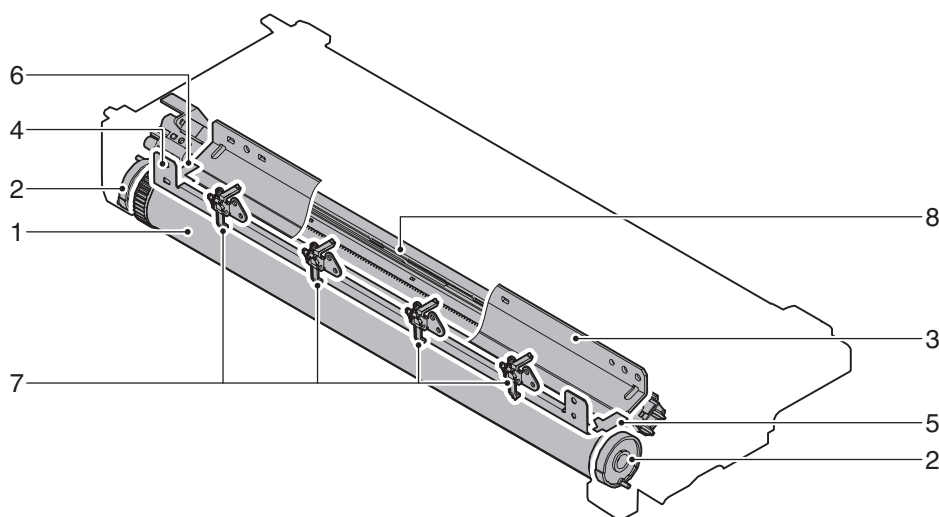
Positive charges generated in CGL are attracted to the negative charges on the OPC drum surface. On the other hand, negative charges are attracted to positive charges in the aluminum layer of the OPC drum.

Therefore, positive and negative charges are balanced out on the OPC drum surface and in the aluminum layer, reducing positive and negative charges to decrease the surface voltage of the OPC drum.

D. Maintenance and parts replacement

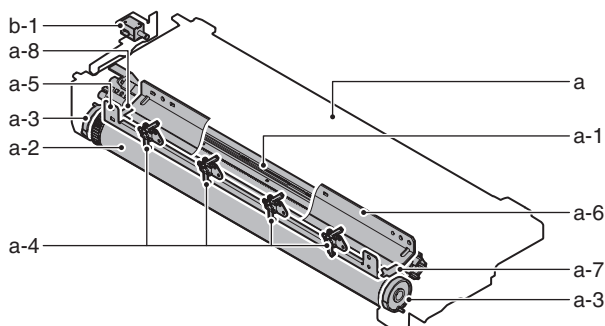
(1) Maintenance list

Unit name	No.	Part name	When calling	100K	200K	300K	400K	500K	600K	700K	800K	Remark
Drum peripheral	1	Drum		×	▲	×	▲	×	▲	×	▲	
	2	DSD collar		○	○	○	○	○	○	○	○	
	3	Cleaner blade		×	▲	×	▲	×	▲	×	▲	Replace at 200K or 1 year. P/G No.: [10]-49
	4	Toner reception seal		×	▲	×	▲	×	▲	×	▲	P/G No.: [10]-42
	5	Side molt F		×	▲	×	▲	×	▲	×	▲	Apply side seal powder. P/G No.: [10]-33
	6	Side molt R		×	▲	×	▲	×	▲	×	▲	Apply side seal powder. P/G No.: [10]-37
	7	Drum separation pawl unit		×	▲	×	▲	×	▲	×	▲	P/G No.: [5]-501
	8	MC unit	×	○	▲	○	▲	○	▲	○	▲	Includes the screen grid, the charging plate, and the MC cleaner. ○: Charging plate cleaning by the MC cleaner P/G No.: [9]-901



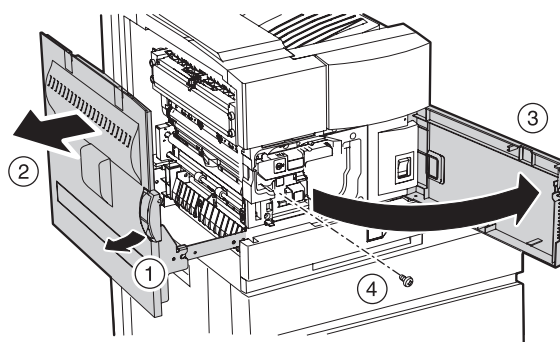
(2) Maintenance and parts replacement

No.	Unit	Parts	
a	Drum cartridge	1	MC unit
		2	Drum
		3	DSD collar
		4	Drum separation pawl unit
		5	Toner reception seal
		6	Cleaner blade
		7	Side molt F
		8	Side molt R
b		1	Separation solenoid

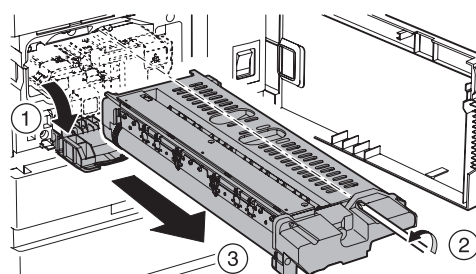


a. Drum cartridge

- 1) Release the lock, and pull out the left door.
- 2) Open the front door, and remove the screw.

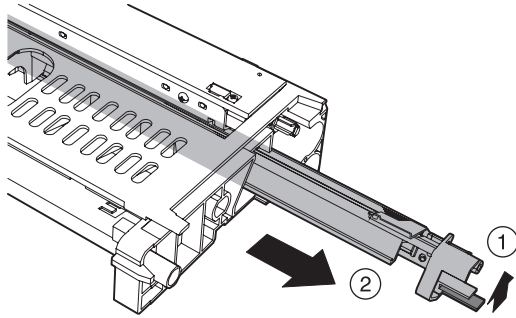


- 3) Put down the DV guide handle. Loosen the screw, and remove the drum cartridge.

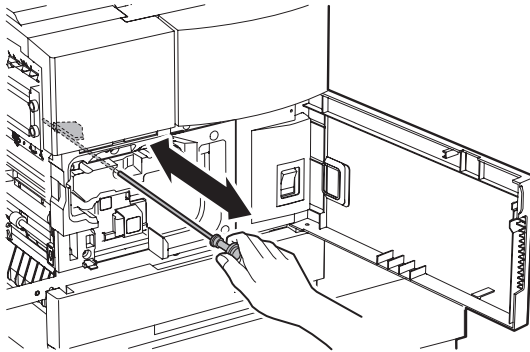


a-1. MC unit

- 1) Remove the drum cartridge.
- 2) Check to confirm that the cleaning unit is inserted fully to the bottom.
- 3) Remove the pawl, and remove the MC unit.



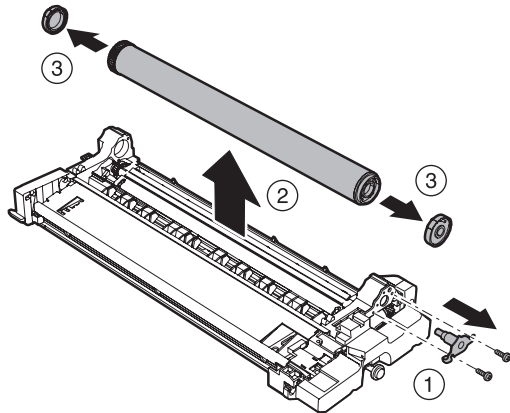
* For cleaning the MC unit (charging plate), reciprocate the cleaning unit back and forth 3 times or more.



a-2. Drum

a-3. DSD collar

- 1) Remove the drum cartridge.
 - 2) Loosen the screw, and remove the drum boss mounting plate.
 - 3) Remove the drum, and remove the DSD collar.
- * When removing the drum, place the drum cartridge as shown in the figure and remove the drum.

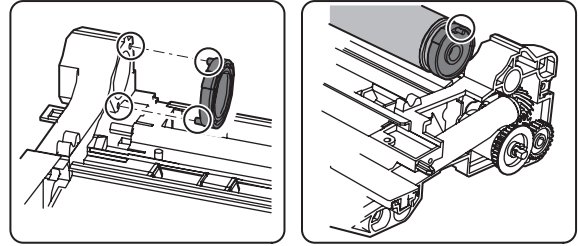


* When replacing the OPC drum, clear the following counters.

- Drum rotating time
- Drum counter

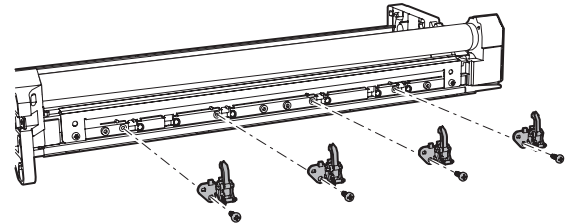
* When installing a new drum, apply starting powder.

* When installing, install the DSD collar R to the drum frame, then install the drum and the DSD collar F. When installing the DSD collar, engage the DSD collar boss with the drum frame hole.

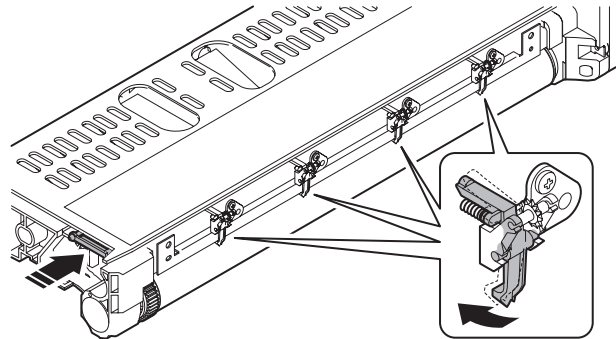


a-4. Drum separation pawl unit

- 1) Remove the drum cartridge.
 - 2) Remove the screw, and remove the drum separation pawl unit.
- * When handling the separation pawl, be careful not to break or scratch the tip of the separation pawl and keep it away from dirt.

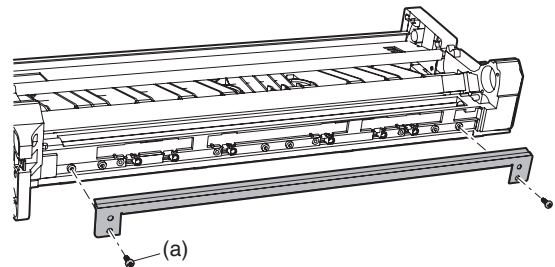


After installing the drum separation pawl unit, push the separation lever and check to confirm that the separation pawl operates normally.



a-5. Toner reception seal

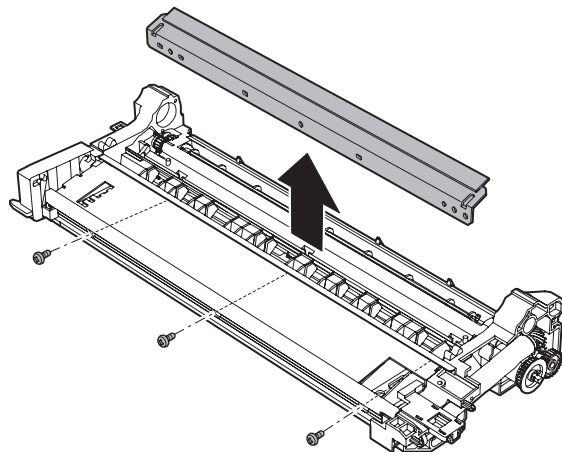
- 1) Remove the drum cartridge.
- 2) Remove the drum and the DSD collar.
- 3) Remove the drum separation pawl unit.
- 4) Remove the screw, and remove the toner reception seal.



* When installing the toner reception seal, tighten the screw (a) on the positioning side for the first time. Check to confirm that the process earth plate and the toner reception seal are conductive. (10Ω or less)

a-6. Cleaner blade

- 1) Remove the drum cartridge.
 - 2) Remove the drum and the DSD collar.
 - 3) Pull it out until the cleaning unit stops.
 - 4) Remove the screw, and remove the cleaner blade.
- * When removing the drum blade, place the drum as shown in the figure and remove the drum blade to prevent toner from dispersing.
- * Do not damage the cleaner blade. Do not touch the lead edge.

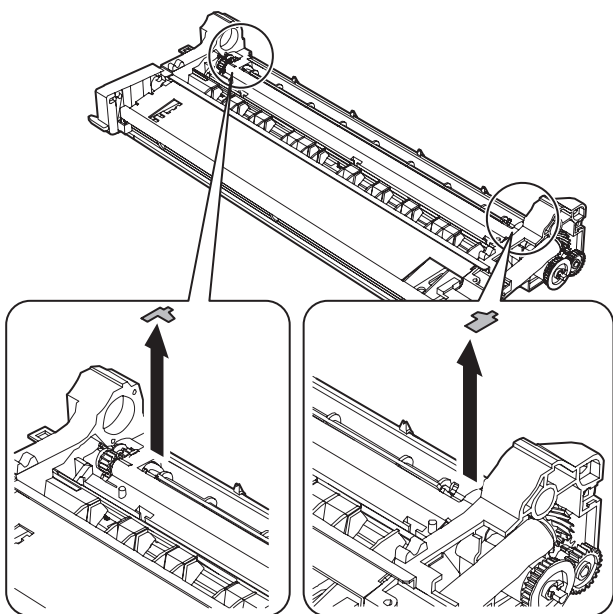


- * When installing the cleaner blade, pull the cleaner shaft fully toward you.
- * After installing the cleaner blade, insert the cleaner shaft fully to the bottom.

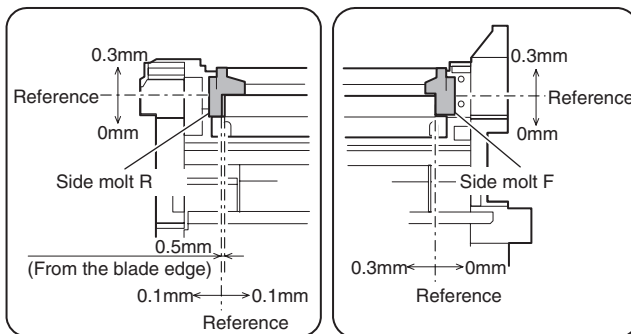
a-7. Side molt F

a-8. Side molt R

- 1) Remove the drum cartridge.
- 2) Remove the drum and the DSD collar.
- 3) Remove the toner reception seal.
- 4) Remove the cleaner blade.
- 5) Remove the side molt F and R.



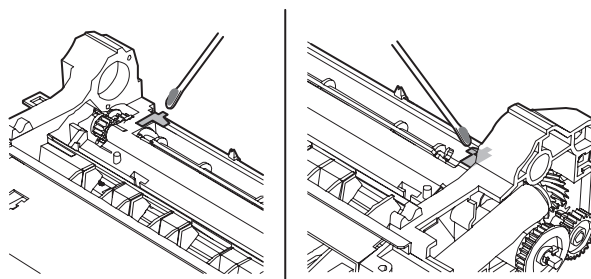
- * When attaching the side molts F/R, attach them to the attachment reference as shown.
- * After attaching the side molt F/R, push the both ends of the blade with your fingers to check to confirm that the red moquette moves smoothly.



Put side seal powder (1g) on the moquettes F/R and spread side seal powder all over the moquettes surfaces.

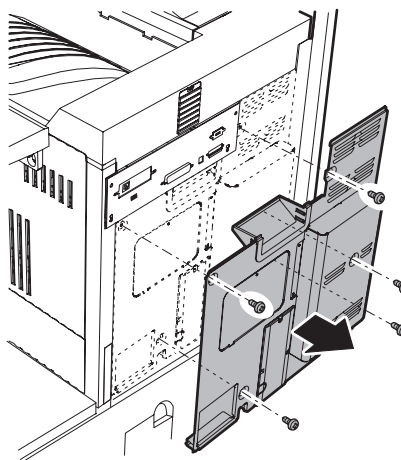
Side seal powder: UKOG-0309FCZZ

- * Do not apply powder excessively to the ambient parts.
- * Be careful not to damage the cleaning blade and the side blade.

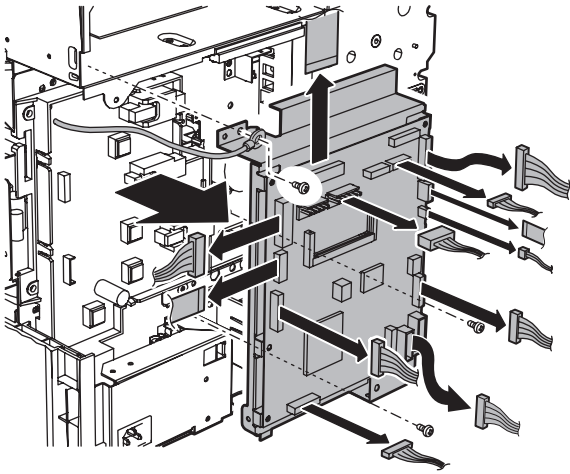


b-1. Separation solenoid

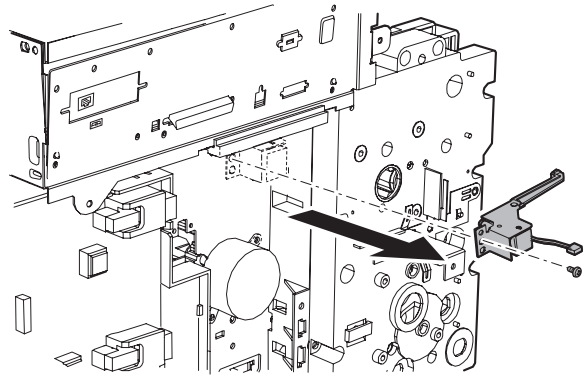
- 1) Remove the screw, and remove the rear cabinet.



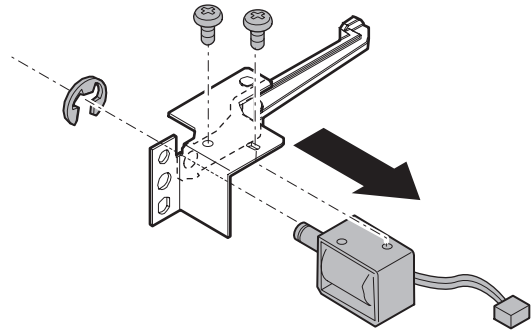
- 2) Remove the connector and the screw, and remove the PCU PWB unit.



- 3) Remove the screw and the connector, and remove the separation solenoid unit.



- 4) Remove the E-ring and the screw, and remove the separation solenoid.

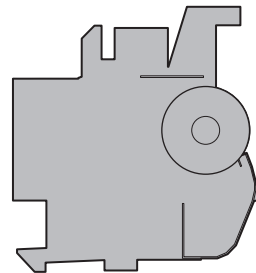
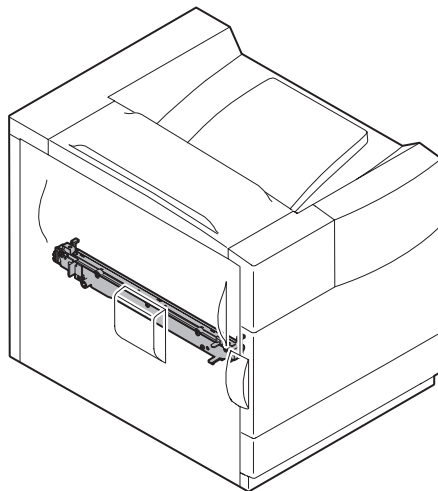


[Transfer section]

A. General

In this section, toner images on the OPC drum are transferred to paper.

B. Major parts and signal functions

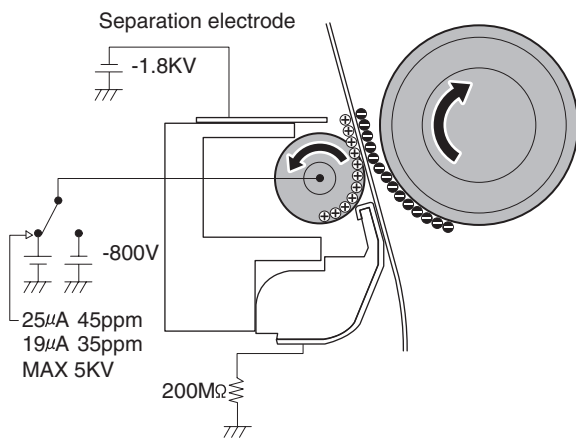


C. Operational descriptions

1) Toner image transfer

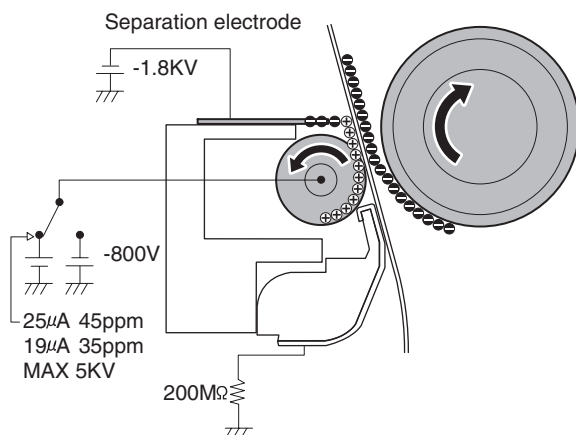
Toner images formed on the drum by the developing roller are transferred to paper by the transfer roller.

Toner on the drum is negatively charged by stirring in the developing unit. By applying a positive voltage to the transfer roller, the transfer roller and paper on the transfer roller are positively charged to transfer negatively charged toner images to paper.



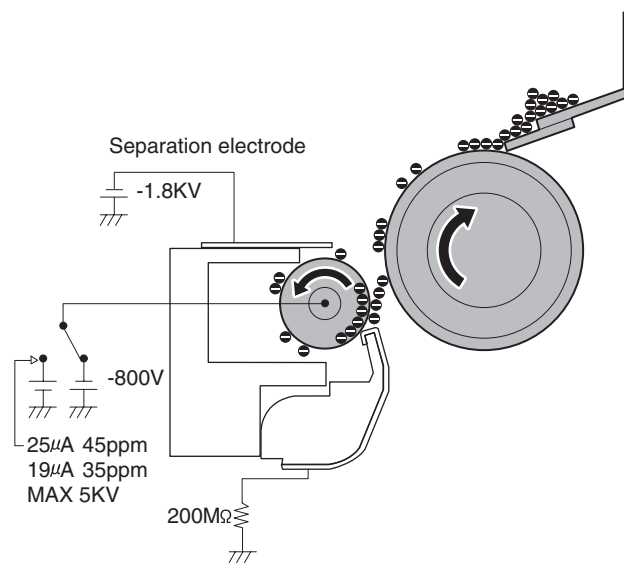
Separation operation

Since paper with toner images transferred on it is positively charged, a high negative voltage is applied to the separation electrode to separate the paper from the drum.



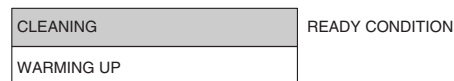
2) Transfer roller cleaning

After completion of the job, the applied voltage to the transfer roller is switched to negative in order to attract toner from the transfer roller to the OPC drum, cleaning the drum with the cleaning blade.



The transfer cleaning voltage and the developing positive bias are applied to the OPC drum at the timing shown below so that remaining toner on the transfer roller is attracted again to the OPC drum, performing cleaning.

1) When the power is turned on:

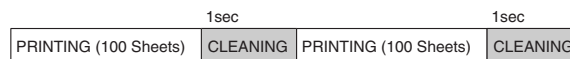


* However, the cleaning voltage is not applied during warm up after completion of SIM.

2) After completion of a print job



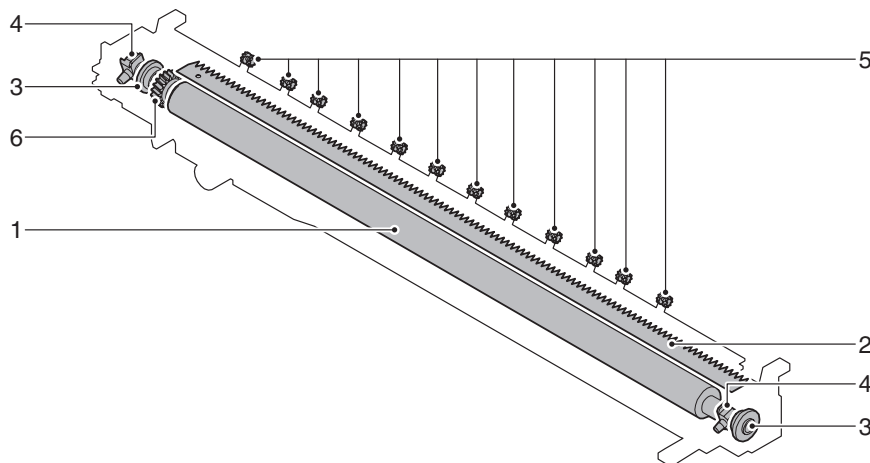
3) After printing 100 sheets (during 1 job)



D. Maintenance and parts replacement

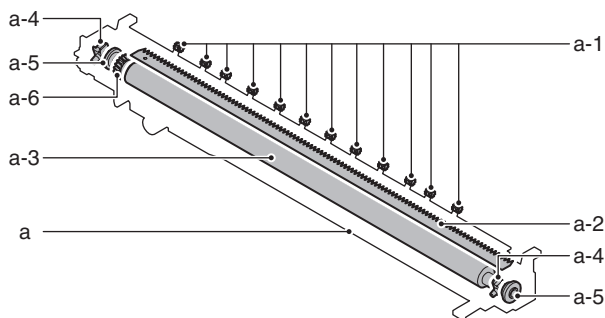
(1) Maintenance list

Unit name	No.	Part name	When calling	100K	200K	300K	400K	500K	600K	700K	800K	Remark
Transfer	1	Transfer roller	×	×	▲	×	▲	×	▲	×	▲	P/G No.: [5]-8
	2	Discharge plate	×	×	▲	×	▲	×	▲	×	▲	P/G No.: [5]-2
	3	TR bearing (F/R)		×	×	×	▲	×	×	×	▲	P/G No.: [5]-9, 18
	4	Transfer roller collar		×	×	×	▲	×	×	×	▲	P/G No.: [5]-10
	5	After-transfer star ring		×	×	×	×	×	×	×	×	P/G No.: [5]-19
	6	TR gear	×	×	▲	×	▲	×	▲	×	▲	P/G No.: [5]-15



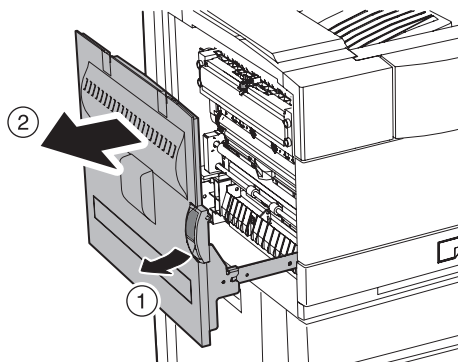
(2) Maintenance and parts replacement

No.	Unit	Parts	
a	Transfer roller unit	1	After-transfer star ring
		2	Discharge plate
		3	Transfer roller
		4	Transfer roller collar
		5	TR bearing (F/R)
		6	TR gear

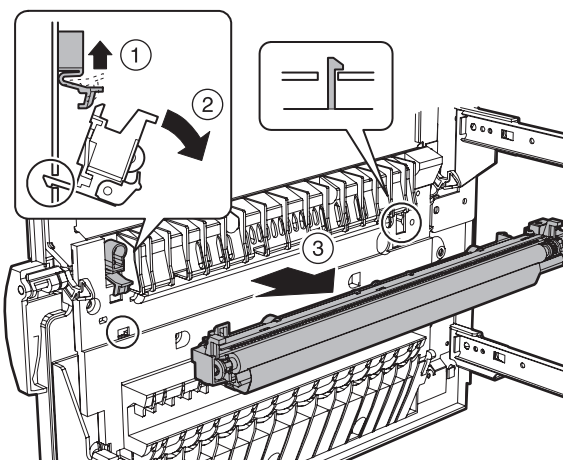


a. Transfer roller unit

- 1) Pull out the left door.

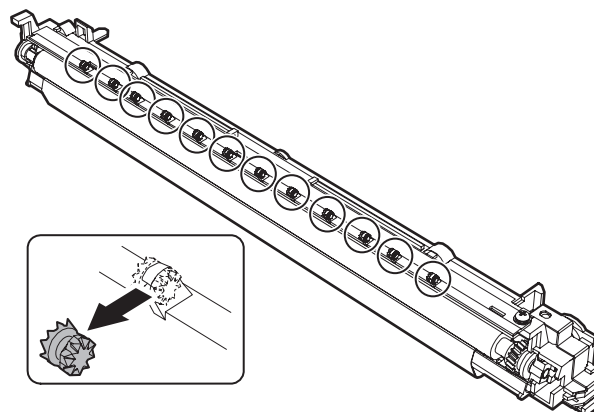


- 2) Remove the transfer lock pawl, and pull out the transfer roller unit.



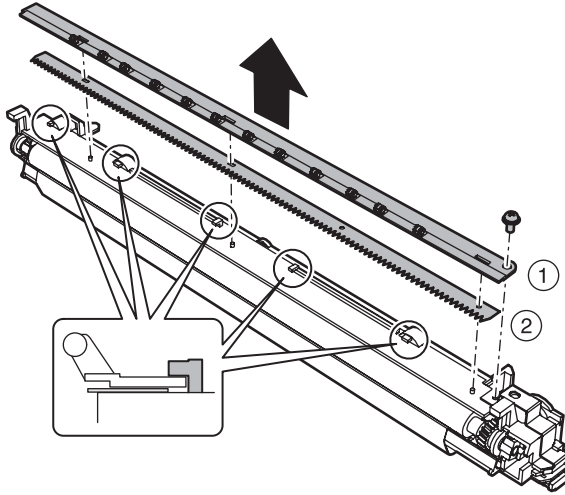
a-1. After-transfer star ring

- 1) Remove the transfer roller unit.
- 2) Remove the transfer rear star ring.



a-2. Discharge plate

- 1) Remove the transfer roller unit.
- 2) Remove the screw, and remove the discharge plate holder and the discharge plate.



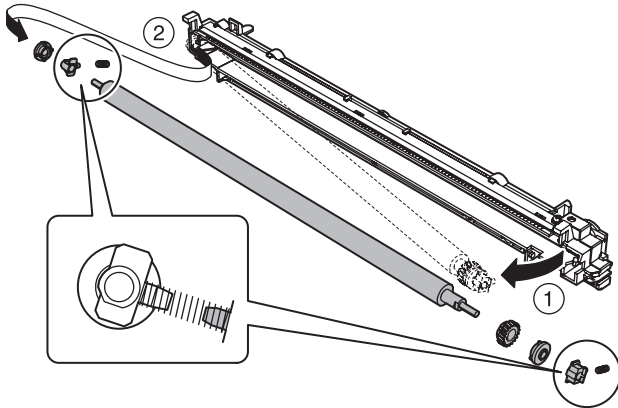
a-3. Transfer roller

a-4. Transfer roller collar

a-5. TR bearing (F/R)

a-6. TR gear

- 1) Remove the transfer roller unit.
- 2) Remove the screw, and remove the discharge plate holder and the discharge plate.

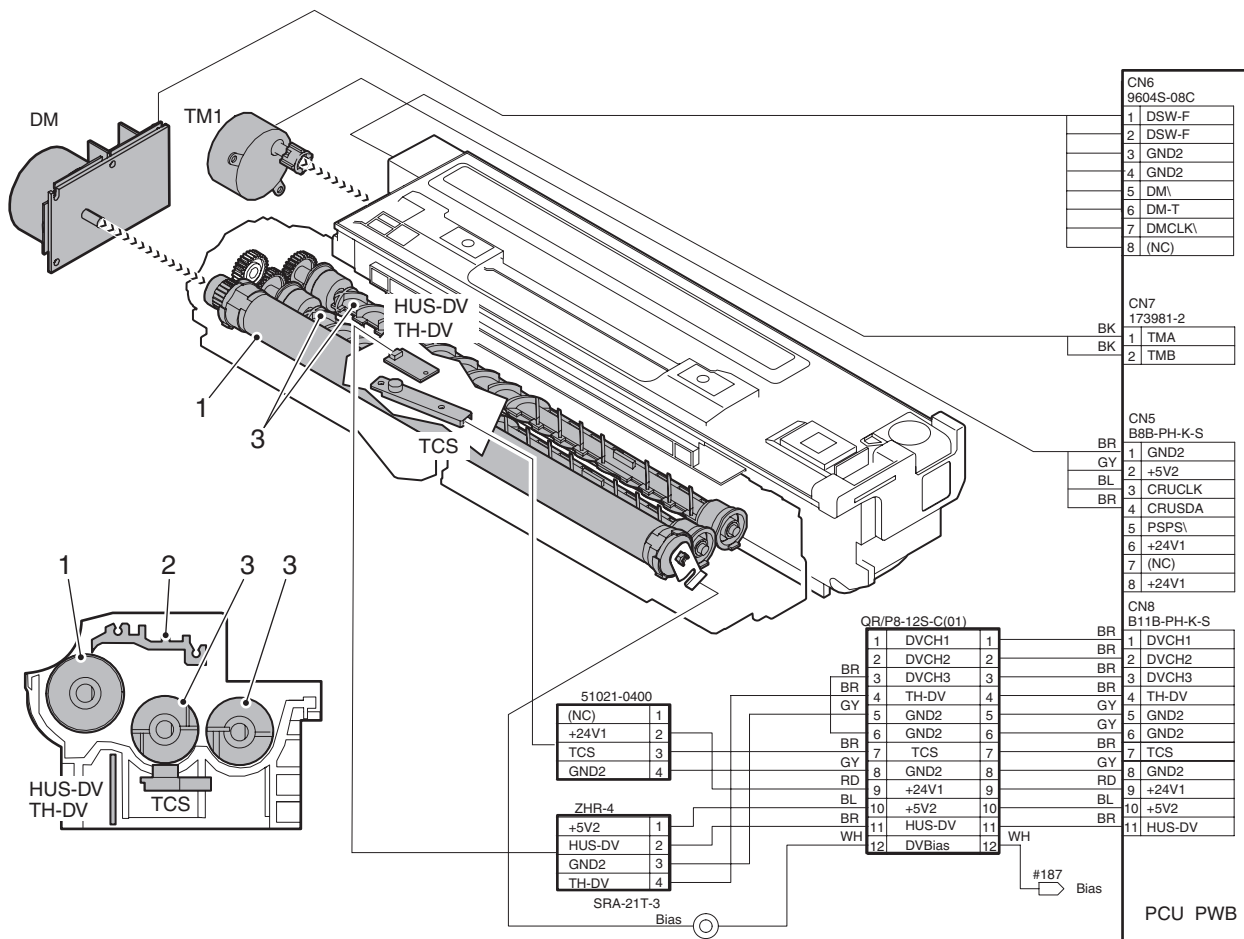


[Developing section]

A. General

In this section, toner is attached to electrostatic latent images formed by laser beams on the OPC drum, making visible images.

B. Major parts and signal functions

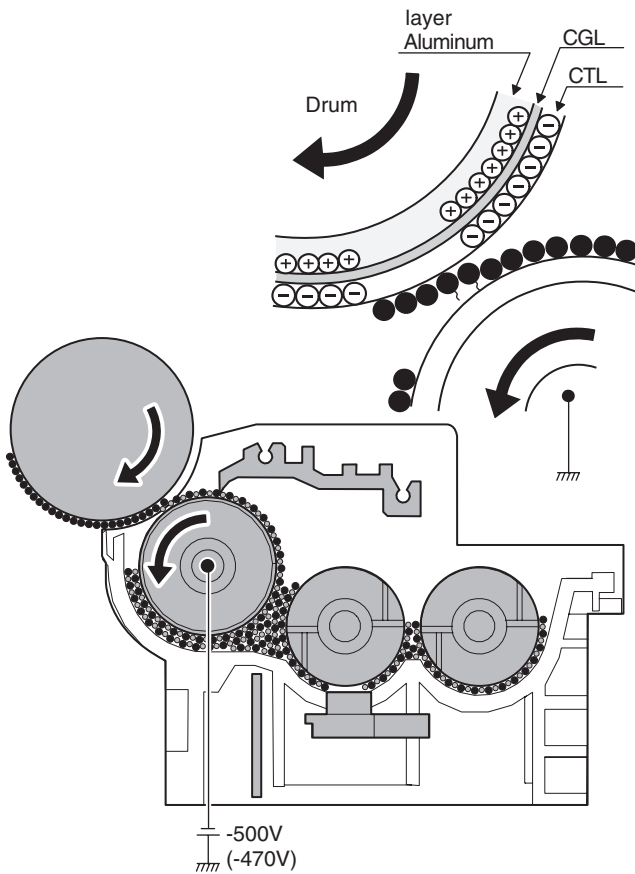


Code	Signal name	Name	Function/Operation	Type	Note
HUS-DV	HUS-DV	Developing humidity sensor	Developing section peripheral humidity detection	Humidity sensor	Analog detector
TH-DV	TH-DV	Developing temperature thermistor	Temperature detection around the developing unit	Thermistor	Analog
TCS	TCS	Toner density sensor	Toner density detection	Magnetic sensor	Analog detector
DM	DM	Drum motor	Drives the drum/developing section.	DC brushless motor	
TM1	TM	Toner motor	Drives the toner hopper.	Synchronous motor	
Bias	Bias	Developing bias	High voltage for developing bias		

No.	Name	Operation
1	Developing roller	Forms magnetic brush with developer and put toner on the OPC drum.
2	DV doctor	Keeps the height of the magnetic brush on the developing roller at a fixed level.
3	Mixing roller (MX roller)	Mixes developer (carrier and toner) and charges toner negatively.

C. Operational descriptions

Electrostatic latent images formed on the OPC drum by the Laser unit (LD image light) are converted into visible images by toner.



Toner in the developing unit is stirred by the mixing roller.

When toner is stirred, it is negatively charged by mechanical friction.

The developing bias voltage (negative) is applied to the developing roller.

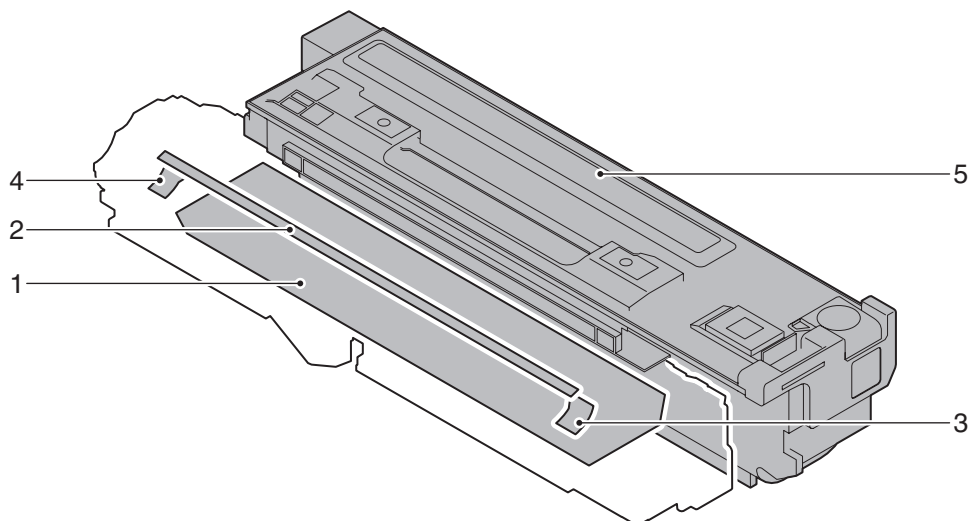
Negatively charged toner is attracted and attached to the area on the OPC drum where negative voltage is reduced by exposure.

On the other hand, the negative voltage at an area where exposure is not made is higher than the developing bias voltage, and toner is not attached.

D. Maintenance and parts replacement

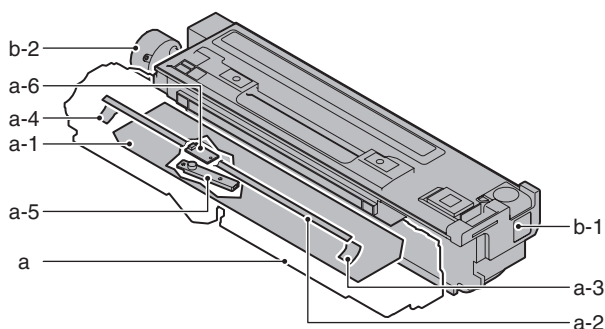
(1) Maintenance list

Unit name	No.	Part name	When calling	100K	200K	300K	400K	500K	600K	700K	800K	Remark
Developing section	1	Developer		▲	▲	▲	▲	▲	▲	▲	▲	Supplied when installing
	2	DV blade		×	▲	×	▲	×	▲	×	▲	P/G No.: [11]-55
	3	DV side seal F		×	▲	×	▲	×	▲	×	▲	P/G No.: [11]-38
	4	DV side seal R		×	▲	×	▲	×	▲	×	▲	P/G No.: [11]-43
	5	Toner cartridge										Attached when installing./ 750g, user replacement for every 35K.



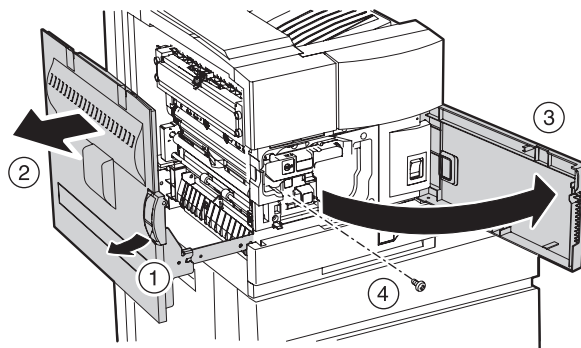
(2) Maintenance and parts replacement

No.	Unit	Parts		
a	DV cartridge	1	Developer	▲
		2	DV blade	×
		3	DV side seal F	×
		4	DV side seal R	×
		5	Toner density sensor	
		6	Temperature/humidity sensor	
b		1	Toner cartridge	
		2	Toner motor	

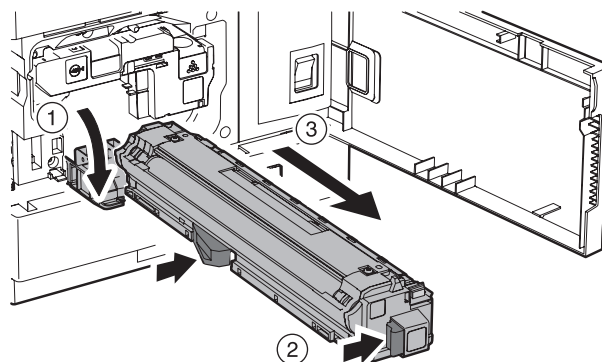


a. DV cartridge

- 1) Release the lock, and pull out the left door.
- 2) Open the front door, and remove the screw.

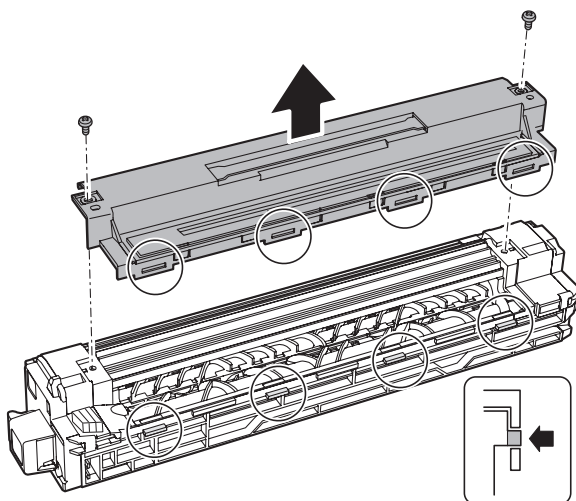


- 3) Put down the DV guide handle, release the lock, and remove the DV cartridge.

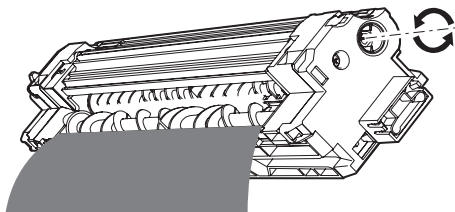


a-1. Developer

- 1) Remove the DV cartridge.
- 2) Remove the screw, and remove the DV cover.

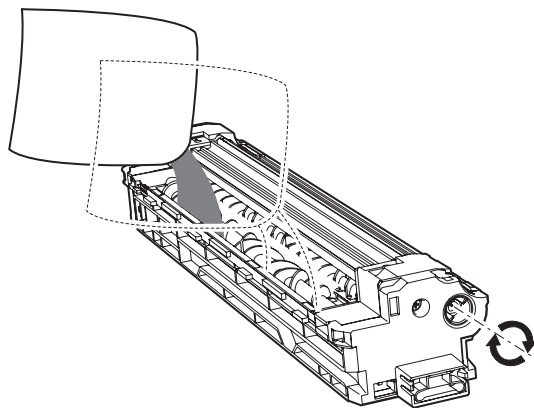


- 3) Remove old developer.



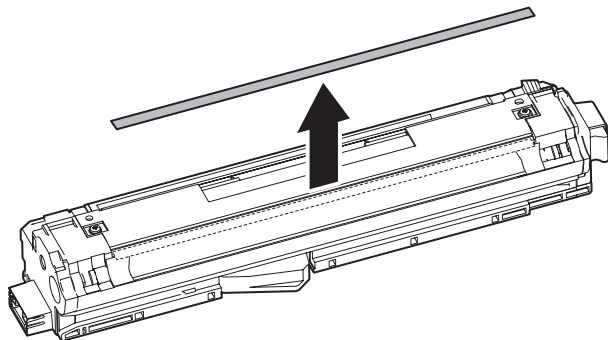
* Use a metal scale or a minus screwdriver for easy operation.

- 4) Supply new developer.

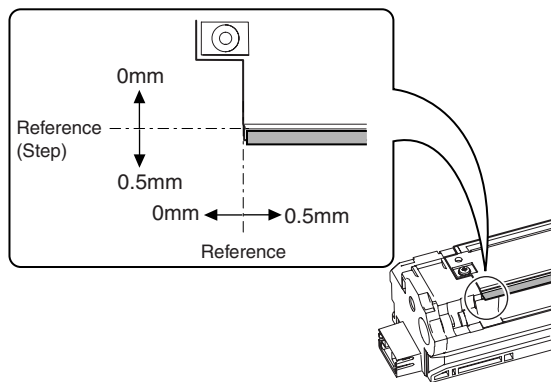


a-2. DV blade

- 1) Remove the DV cartridge.
- 2) Remove the DV blade.



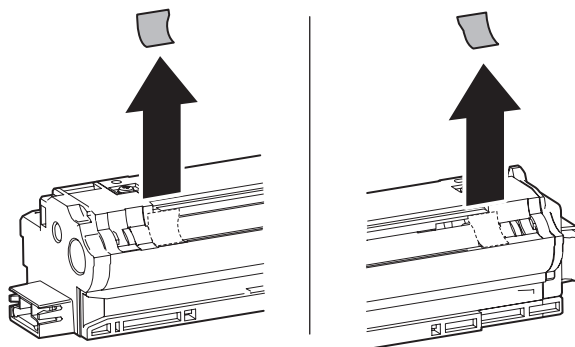
* When attaching the DV blade, attach to the attachment reference shown in the figure below.



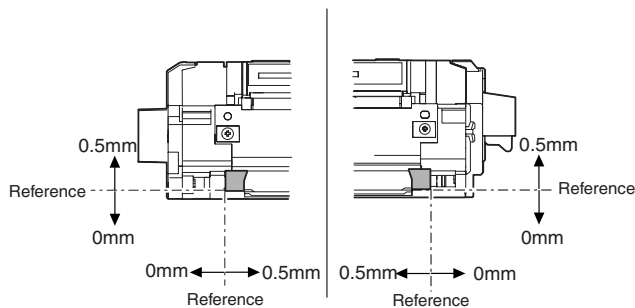
a-3. DV side seal F

a-4. DV side seal R

- 1) Remove the DV cartridge.
- 2) Remove the DV side seal F and the DV side seal R.



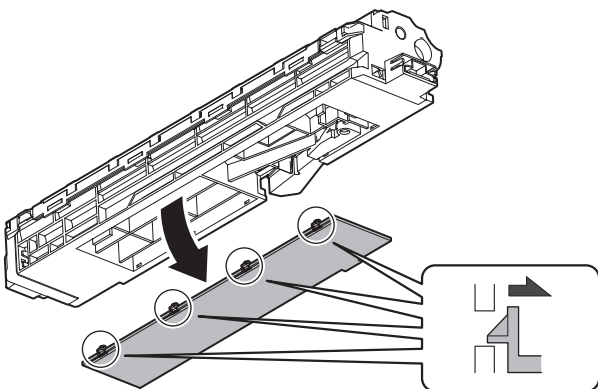
* When attaching the SV side seals F and R, attach them to the attachment reference shown in the figure below.



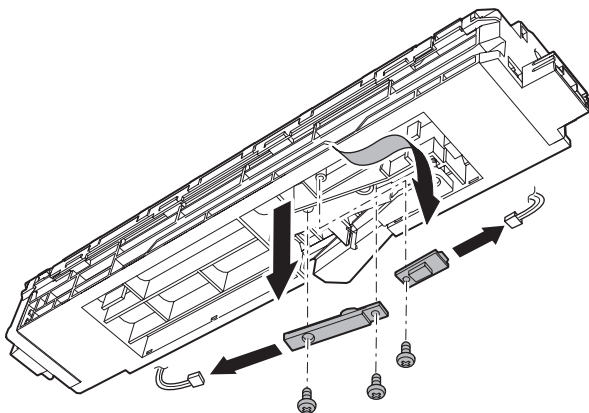
a-5. Toner density sensor

a-6. Humidity sensor

- 1) Remove the DV cartridge.
- 2) Remove the bottom cover.

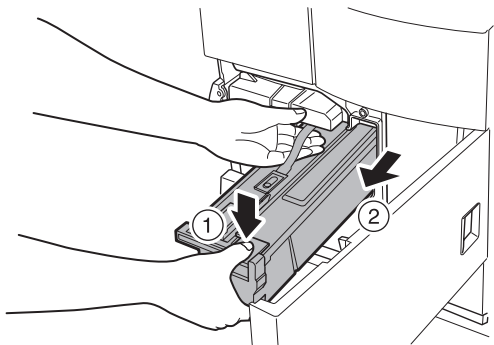


- 3) Remove the bottom cover.
- 4) Remove the screw and the connector, and remove the humidity sensor.



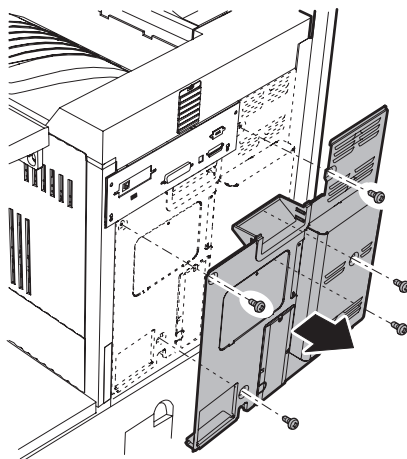
a-7. Toner cartridge

- 1) Open the left door and the front door.
- 2) Release the lock and remove the toner cartridge.

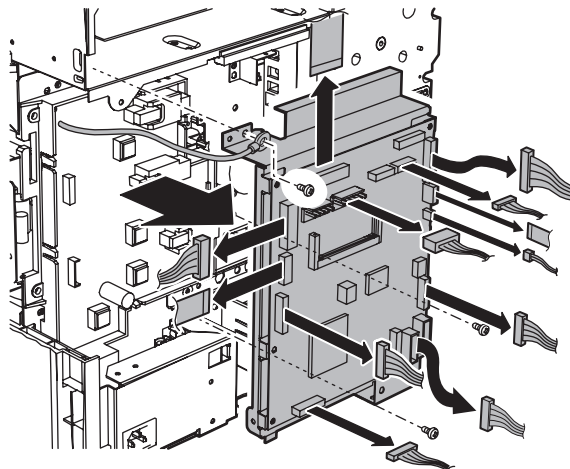


a-8. Toner motor

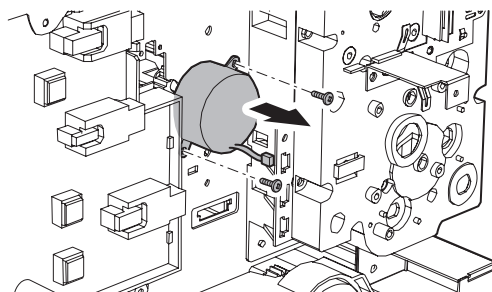
- 1) Remove the toner cartridge.
- 2) Remove the screw, and remove the rear cabinet.



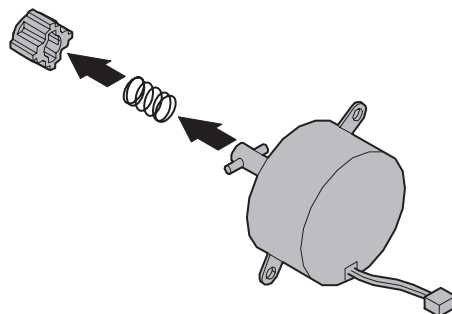
- 2) Remove the connector and the screw, and remove the PCU PWB unit.



- 3) Remove the connector and the screw, and remove the toner motor unit.



- 4) Remove the coupling and the spring from the toner motor.



Code	Signal name	Name	Type	Function/Operation	Active condition	Note
RTH1	RTH1	Fusing temperature sensor (1)	Thermistor	Detects the surface temperature of the fusing roller (heating). (Center section)	Analog input	
RTH2	RTH2	Fusing temperature sensor (2)	Thermistor	Detects the surface temperature of the fusing roller (heating). (Side roller section)	Analog input	
HLTS	HLTS	Thermostat (1)		Opens the circuit to the heater lamp when the temperature rises abnormally. [For the fusing roller (heating)]		
HL1	HL1	Heater lamp (1)		Heats the fusing roller (heating).		
HL2	HL2	Heater lamp (2)		Heats the fusing roller (heating).		
MM	MM	Main motor		Drives the fusing unit.		

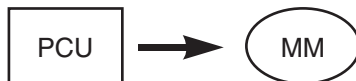
1	Heater lamp 1	Generates heat and transmits heat to the heat roller. The temperature is controlled by the thermistor. (Generates heat for the upper roller.)
2	Heater lamp 2	Generates heat and transmits heat to the heat roller. The temperature is controlled by the thermistor. (Generates heat for the upper roller.)
3	Upper heat roller	Transmits heat to melt toner on paper and fuse toner by means of a pressure with the lower heat roller.
4	Lower heat roller	Fuses toner on paper by means of a pressure with the upper heat roller. To improve fusing capability, the diameter is greater than the conventional ones. ($\phi 30\text{mm} \rightarrow \phi 40\text{mm}$)
5	Fusing upper separation pawl	Prevents winding of paper around the upper heat roller.
6	Fusing lower separation pawl	Prevents winding of paper around the lower heat roller.
7	Thermistor (Center)	Detects the surface temperature of the upper heat roller. (On/off of heater lamp 1 is controlled according to the detected temperature.)
8	Thermistor (Side)	Detects the surface temperature of the upper heat roller. (On/off of heater lamp 2 is controlled according to the detected temperature.)
9	Thermostat	When an abnormal temperature of the upper heat roller is detected, the heater lamp power is interrupted. To reset the thermostat and close the electrical circuit. Reset the switch on top of the thermostat.
10	Cleaning roller	Cleans toner on the lower heat roller. The blast process is employed. The cold steel roller will attract the unused dirty toner from the pressure roller.

C. Operational descriptions

(1) Fusing unit drive

To drive the fusing unit, the drive power is transmitted from the drive motor (MM) through the connection gear to the upper heat roller gear.

The drive motor DC brushless motor is driven according to the control signal sent from the PCU.



(2) Heater lamp drive

The surface temperature of the heat roller detected by the thermistor is sent to the PCU.

When the temperature is lower than the specified level, the heater lamp lighting signal is sent from the PCU to the heater lamp drive circuit in the sub power PWB.

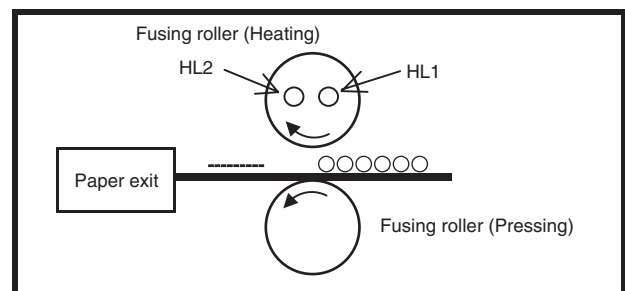
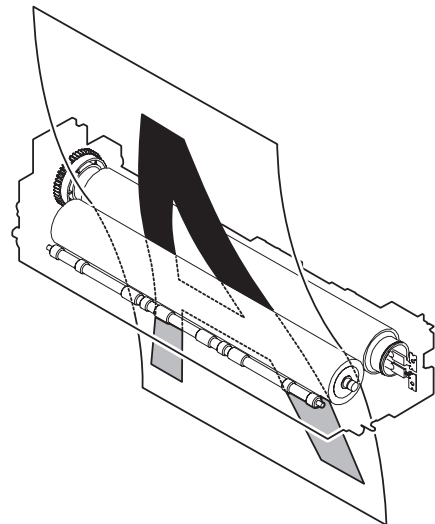
Change to : When the triac for the heater lamp circuit is turned on the AC power is supplied to the heater lamp. Heat is supplied to the roller.

To prevent abnormally high temperatures to the heat roller, the thermostat is provided for safety.

When the thermostat is opened, power supply (AC line) to the heater lamp is prohibited.

(3) Fusing operation

Toner on paper is heated and pressed to be fused by the heat roller.



The fusing heat roller (heating) is provided with two heater lamps, which heat the fusing roller to fuse toner onto paper.

The fusing rollers (pressing) are made of silicon rubber because of the following reasons and purpose.

- 1) Paper is separated upward. (Since the fusing roller (heating) is of higher hardness, the fusing roller (pressing) is deformed to separate paper upward.)
- 2) The nip quantity is increased to increase heat capacity for paper.
- 3) By pressing paper with the flexible roller, toner is fused without deformation.

(4) Fusing temperature control

The temperature sensor is provided at the center of the fusing roller (heating).

The roller temperature is detected by the thermistor sensor, and the heater lamp is controlled so that the temperature is maintained at the specified level.

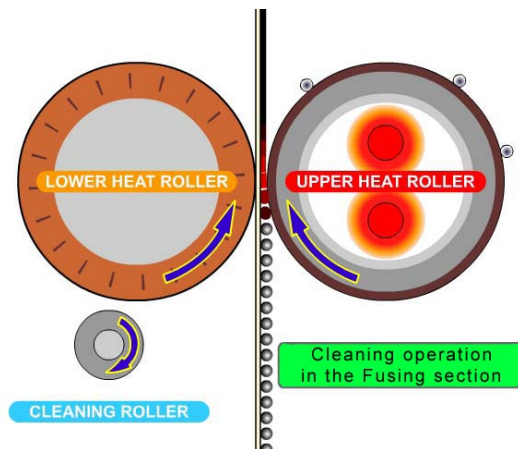
In addition, the fusing temperature is switched according to the kind of paper.

Mode		Fusing roller	
		MX-M350U/ M350N	MX-M450U/ M450N
Ready condition print mode	Plain paper	190°C	190°C
	Heavy Paper	190°C	190°C
	Postcard	190°C	190°C
	Envelope	190°C	190°C
Pre-heat		150°C	150°C

(5) Cleaning roller

The fusing section cleaning roller of this machine is made of the blast process.

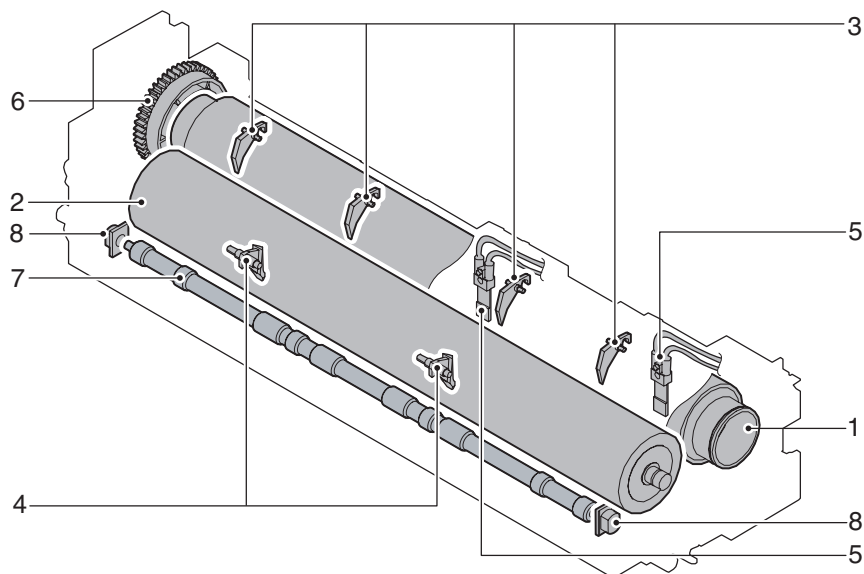
- 1) Change to the fusing unit uses a colder roller to clean unwanted toner from the pressure roller.
- 2) Due to coating and the temperature characteristics of the upper heat roller, toner is not attached to the upper heat roller but to the lower heat roller.
- 3) Remaining toner on the lower heat roller is further attached to the cleaning roller due to the temperature characteristics and the difference in roughness of surfaces of the rollers.
- 4) Remaining toner attached to the cleaning roller is accumulated until the roller is replaced.



D. Maintenance and parts replacement

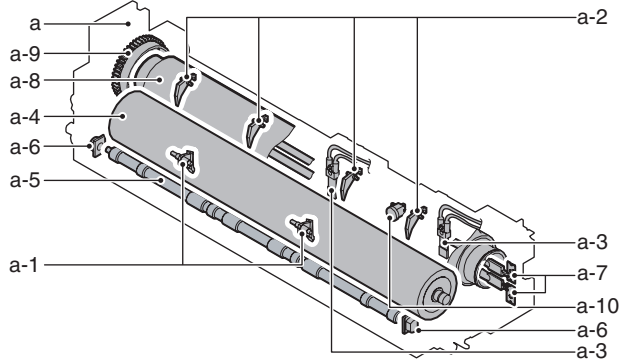
(1) Maintenance list

Unit name	No.	Part name	When calling	100K	200K	300K	400K	500K	600K	700K	800K	Remark
Fusing section	1	Upper heat roller	×	×	▲	×	▲	×	▲	×	▲	P/G No.: [7]-46
	2	Lower heat roller	×	×	▲	×	▲	×	▲	×	▲	P/G No.: [7]-22
	3	Upper separation pawl	○	○	▲	○	▲	○	▲	○	▲	P/G No.: [7]-3
	4	Lower separation pawl	○	○	▲	○	▲	○	▲	○	▲	P/G No.: [7]-41
	5	Thermistor	×	×	×	×	×	×	×	×	×	Clean and remove paper dust.
	6	Upper heat roller gear		×	▲	×	▲	×	▲	×	▲	P/G No.: [7]-47
	7	CL roller	×	×	▲	×	▲	×	▲	×	▲	P/G No.: [7]-52
	8	CL roller bearing	×	×	▲	×	▲	×	▲	×	▲	P/G No.: [7]-53
	9	Paper guides	○	○	○	○	○	○	○	○	○	
	10	Gears		☆	☆	☆	☆	☆	☆	☆	☆	



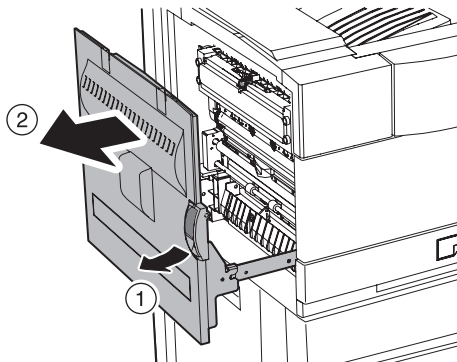
(2) Maintenance and parts replacement

No.	Unit	Parts		
a	Fusing unit	1	Lower separation pawl	○
		2	Upper separation pawl	○
		3	Thermistor	×
		4	Lower heat roller	×
		5	CL roller	×
		6	CL roller bearing	×
		7	Heater lamp	
		8	Upper heat roller	×
		9	Upper heat roller gear	×
		10	Thermostat	

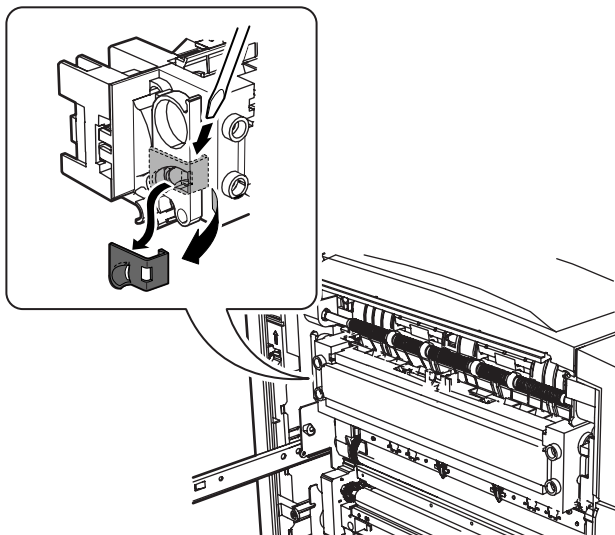


a. Fusing unit

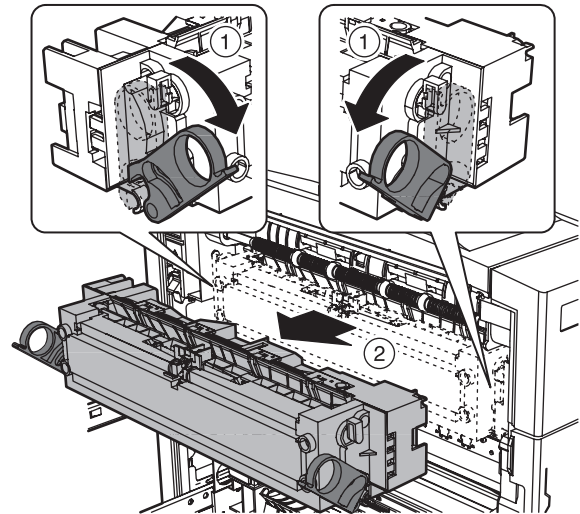
- 1) Pull out the left door.



- 2) Remove the stopper R.

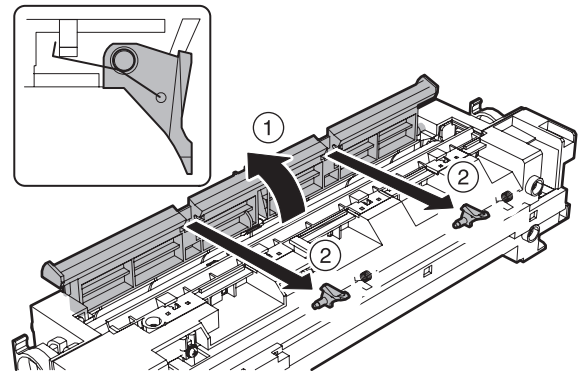


- 3) Pull the fusing lever, and remove the fusing unit.



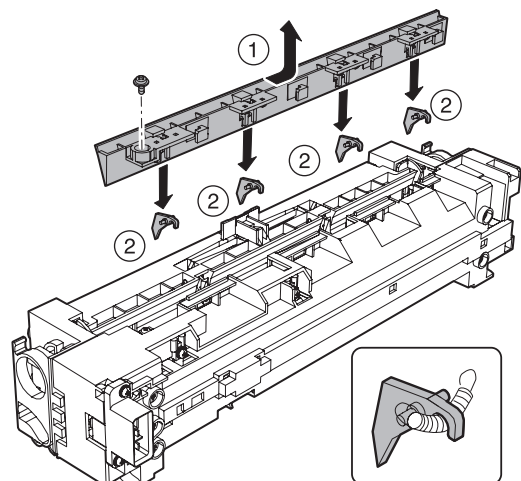
a-1. Lower separation pawl

- 1) Remove the fusing unit.
- 2) Open the fusing rear lower PG, and remove the lower separation pawl.



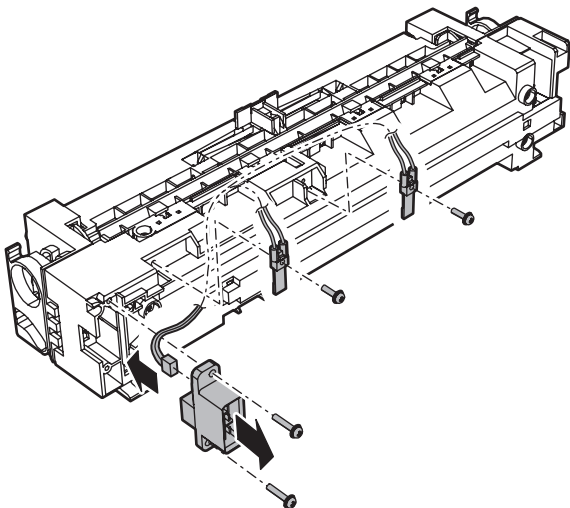
a-2. Upper separation pawl

- 1) Remove the fusing unit.
- 2) Remove the rear upper PG, and remove the upper separation pawl.



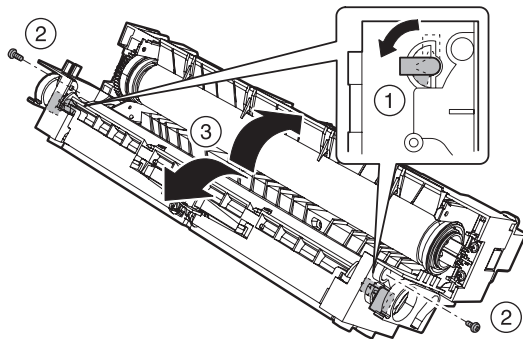
a-3. Thermistor

- 1) Remove the fusing unit.
- 2) Remove the screw, and remove the fusing drawer. Remove the connector.
- 3) Remove the screw, and remove the thermistor.

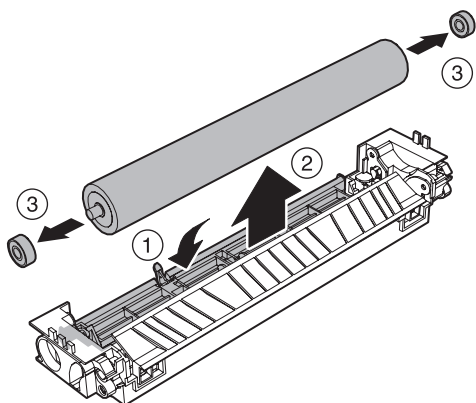


a-4. Lower heat roller

- 1) Remove the fusing unit.
- 2) Release pressure with the pressure adjustment lever.
- 3) Remove the screw, and open the fusing unit.



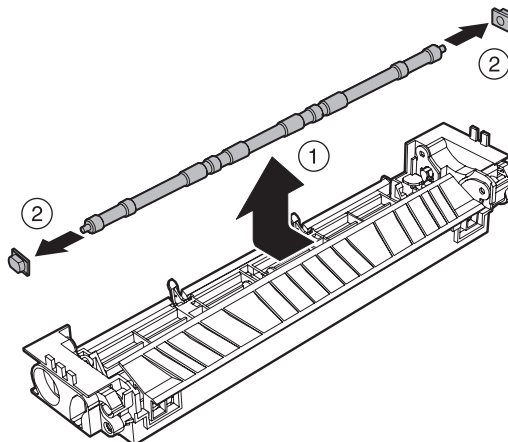
- 4) Open the fusing rear lower PG.
- 5) Remove the lower heat roller, and remove the lower heat roller bearing.



a-5. CL roller

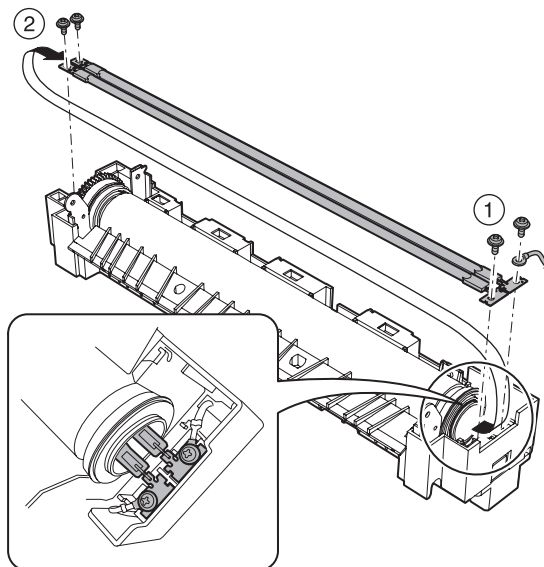
a-6. CL roller bearing

- 1) Remove the fusing unit.
- 2) Remove the lower heat roller.
- 3) Remove the CL roller, and remove the CL roller bearing.



a-7. Heater lamp

- 1) Remove the fusing unit.
 - 2) Open the fusing unit.
 - 3) Remove the screw, and remove the heater lamp.
- * Be careful not to mistake the installing position of the heater lamp.



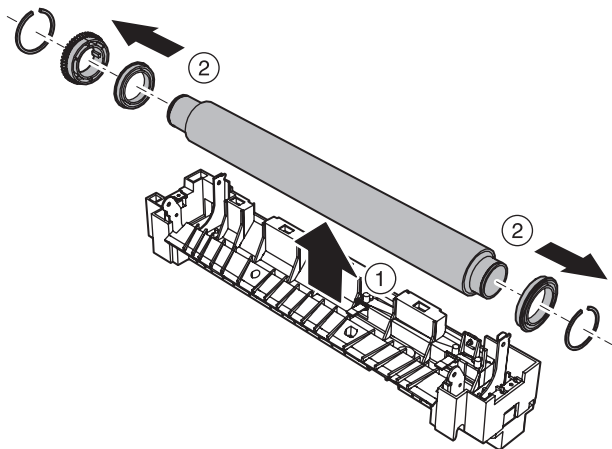
* When installing, loosen the screws on the front side ① (drawer ON side) then the screws on the rear side ② (gear side) in this sequence.

* Check to confirm again that the screws are tighten securely. (If any screw is loosened, a bad contact may cause heating.)

a-8. Upper heat roller

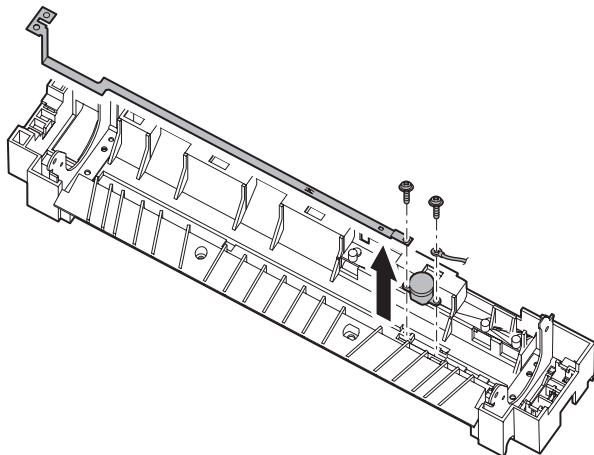
a-9. Upper heat roller gear

- 1) Remove the fusing unit.
- 2) Open the fusing unit.
- 3) Remove the fusing rear upper PG.
- 4) Remove the heater lamp.
- 5) Remove the upper heat roller, the roller stopper. The upper heat roller gear, and the upper heat roller bearing.



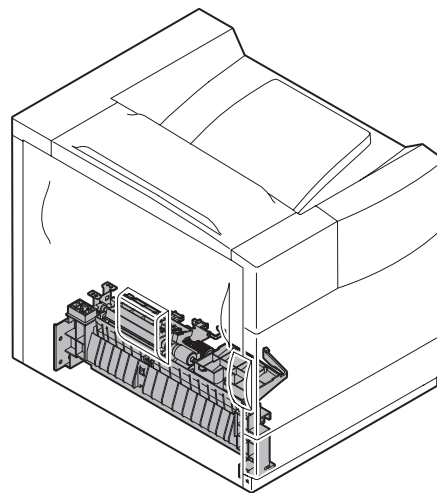
a-10. Thermostat

- 1) Remove the fusing unit.
- 2) Open the fusing unit.
- 3) Remove the fusing rear upper PG.
- 4) Remove the heater lamp.
- 5) Remove the upper heat roller.
- 6) Remove the screw, and remove the electrode plate and the thermostat.



- * When installing, check to confirm that the screws are securely tighten. (If any screw is loosened, a bad contact may cause heating.)
- * A loose screw will provide a bad contact and poor heating will occur.

3. Paper feed section



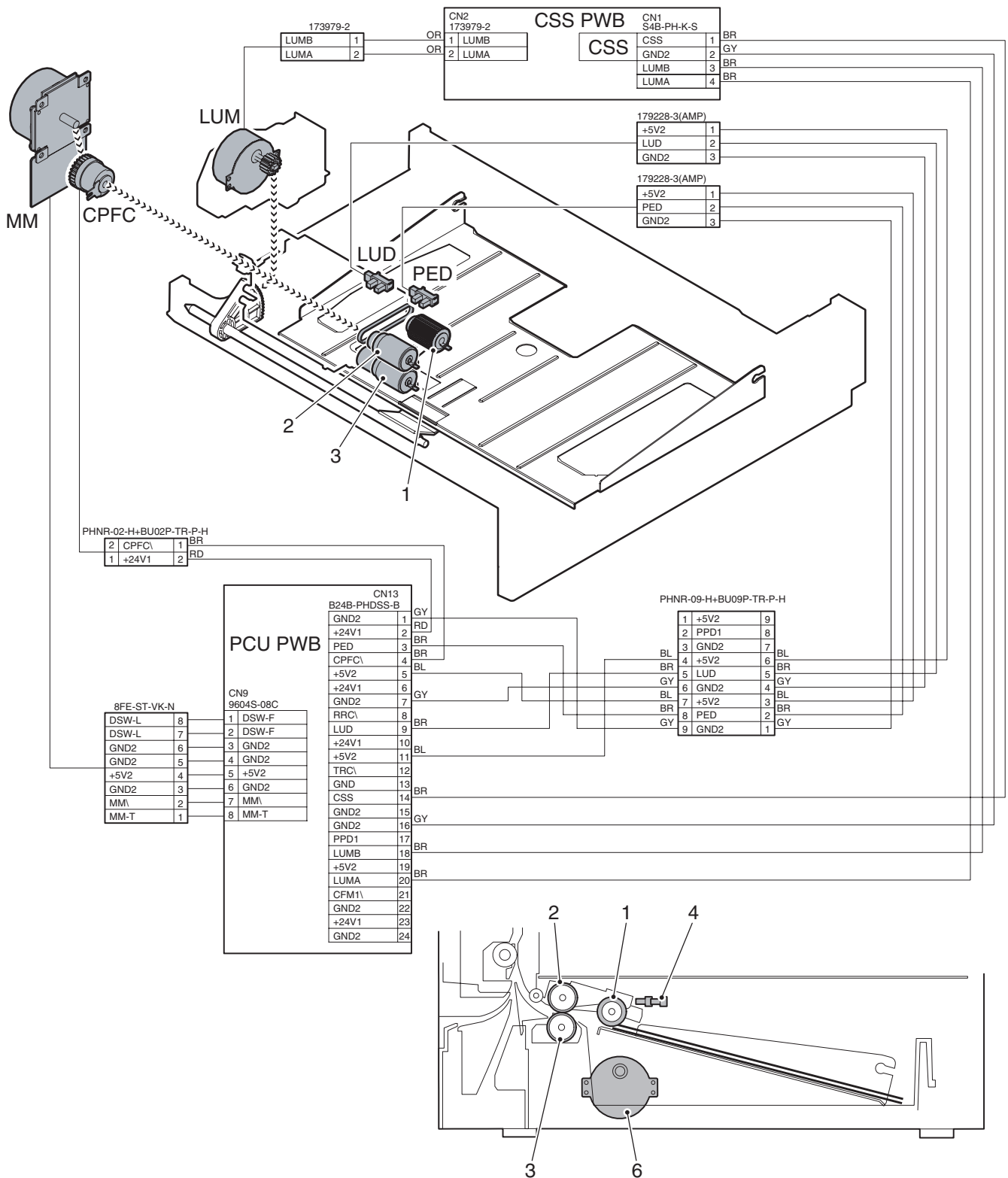
A. General

This section picks up paper in the cassette and feed it to the transport roller section.

The capacity of the paper feed tray is 550 sheets for 64g/m² or 500 sheets for 80g/m².

There are three kinds of the paper feed desk: 3-stage paper feed desk (AR-D27), 2-stage paper feed desk (AR-D28), and 1-stage paper feed desk (AR-MU2). For details, refer to the AR-D27/D28/MU2 Service Manual.

B. Major parts and signal functions



Code	Signal name	Name	Function/Operation	Type	Note
CPFC	CPFC	Paper feed clutch	Paper freed tray section roller ON/OFF control	Electromagnetic clutch	
LUM	LUM	Paper feed tray lift-up motor	Drives the lift plate of the paper feed tray.	DC brush motor	Selection of Rotation mode/ Brake mode
PED	PED	Defector	Paper empty detection		
LUD	LUD	Defector	Paper tray upper limit detection		

	Name	Function	Remark
1	Take-up roller	Picks up paper and transports it to the paper feed roller.	
2	Paper feed roller	Feed paper in the machine.	
3	Separation roller	Rotates simultaneously with the paper feed roller to prevent against overlapped feed. For the manual feed tray, the separation pad is used instead of the roller.	
4	Paper upper limit sensor	Detects the top surface of paper and stops paper at the feed position.	Except for BPT
5	Paper sensor	Detects paper presence. (Paper empty, upper limit detection: ON / Paper presence detection: OFF)	
6	Lift-up motor	Lifts the paper feed base up to the paper feed position (upper limit detection position).	Except for BPT

C. Operational descriptions

[Paper feed operation]

(1) Preliminary operation except for the manual feed tray

- 1) Load paper and insert the tray, and the tray sensor will be turned on.
- 2) The lift-up motor rotates.
- 3) The upper limit sensor turns on.

(2) Paper feed operation

- 1) The take-up roller descends.
- 2) The take-up roller rotates to feed paper.
- 3) At the same time the paper feed roller rotates to feed paper to the transport section.
- 4) At that time, the separation roller rotates to prevent against overlapped feed.

[Paper size detection]

(1) Paper width detection VR (MPT/BPT/Machine tray)

Width detection is performed by calculating the voltage (A/D conversion value) of the slide VR in linkage with the side guide plate.

Paper width and paper size

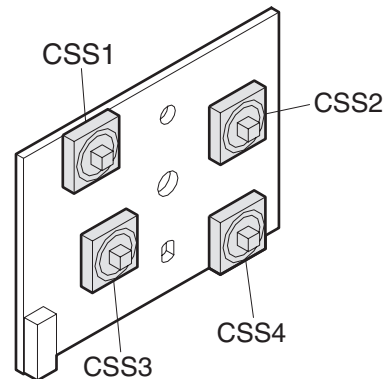
(The range is set to Standard value ± 6 [mm].)

Width detection pattern	Paper size	Standard value (mm)	Range (mm)
A	A3/A4	297.0	303.0 - 291.0
B	WLT/LT	279.4	285.4 - 273.4
C	B4/B5	257.0	263.0 - 251.0
D	LG/LTR/Foolscap	215.9	221.9 - 209.9
E	A4R	210.0	216.0 - 204.0
F	Executive-R	184.1	190.1 - 178.1
G	B5R	182.0	188.0 - 176.0

(2) Paper length sensor

(MPT/2nd and 3rd steps of 3-step paper feed desk)

Length detection is performed by combination of cassette size sensors 1 - 4.



Paper length and paper size

Vertical size detection pattern	Detection SW status				AB series size	Inch series size	Detection width range	Same range size
	CSS1	CSS2	CSS3	CSS4				
1	ON	ON	OFF	ON	B5	EXTRA	147.0 - 198.0	Postcard Monarch
2	OFF	ON	OFF	ON	A4	LT	198.0 - 237.0	DBL P/C C5 DL
3	OFF	ON	ON	ON	B5R	EX-R	237.0 - 274.0	COM-10 ISO-B5
4	OFF	OFF	ON	ON	A4R	LTR	274.0 - 314.0	
5	ON	OFF	ON	ON	Foolscap	Extra	314.0 - 347.0	
6	ON	OFF	ON	OFF	B4	LGL	347.0 - 389.0	
7	ON	ON	ON	OFF	A3	WLT	389.0 - 432.8	
0	OFF	OFF	OFF	OFF	Tray not installed			

(3) Paper detection method of each tray

1) Machine 1st tray

Paper detection is performed by VR in linkage with both side guides.

2) Multi-purpose tray

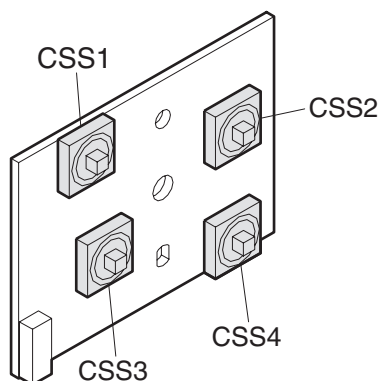
Paper detection is performed by VR in linkage with both side guides and the detector in linkage with the rear edge plate.

Paper size	Width detection pattern	Vertical detection pattern
B5	C	1
A4	A	2
B5R	G	3
A4R	E	4
Foolscap	D	5
B4	B	6
A3	A	7
LT	B	2
EX-R	F	3
LTR	D	4
LGL	D	6
WLT	B	7

For the other than above, the paper size is considered as "Extra."

3) 2nd and 3rd steps of 3-step paper feed tray

Paper detection is performed by the detector in linkage with the rear edge plate.



Paper size for automatic detection

Vertical size detection pattern	Detection SW status				AB series size	Inch series size	Detection width range
	CSS1	CSS2	CSS3	CSS4			
1	ON	ON	OFF	ON	B5	EXTRA	147.0 - 198.0
2	OFF	ON	OFF	ON	A4	LT	198.0 - 237.0
3	OFF	ON	ON	ON	B5R	EX-R	237.0 - 274.0
4	OFF	OFF	ON	ON	A4R	LTR	274.0 - 314.0
5	ON	OFF	ON	ON	Foolscap	EXTRA	314.0 - 347.0
6	ON	OFF	ON	OFF	B4	LGL	347.0 - 389.0
7	ON	ON	ON	OFF	A3	WLT	389.0 - 432.8
0	OFF	OFF	OFF	OFF	Tray not installed		

[Paper remaining quantity detection]

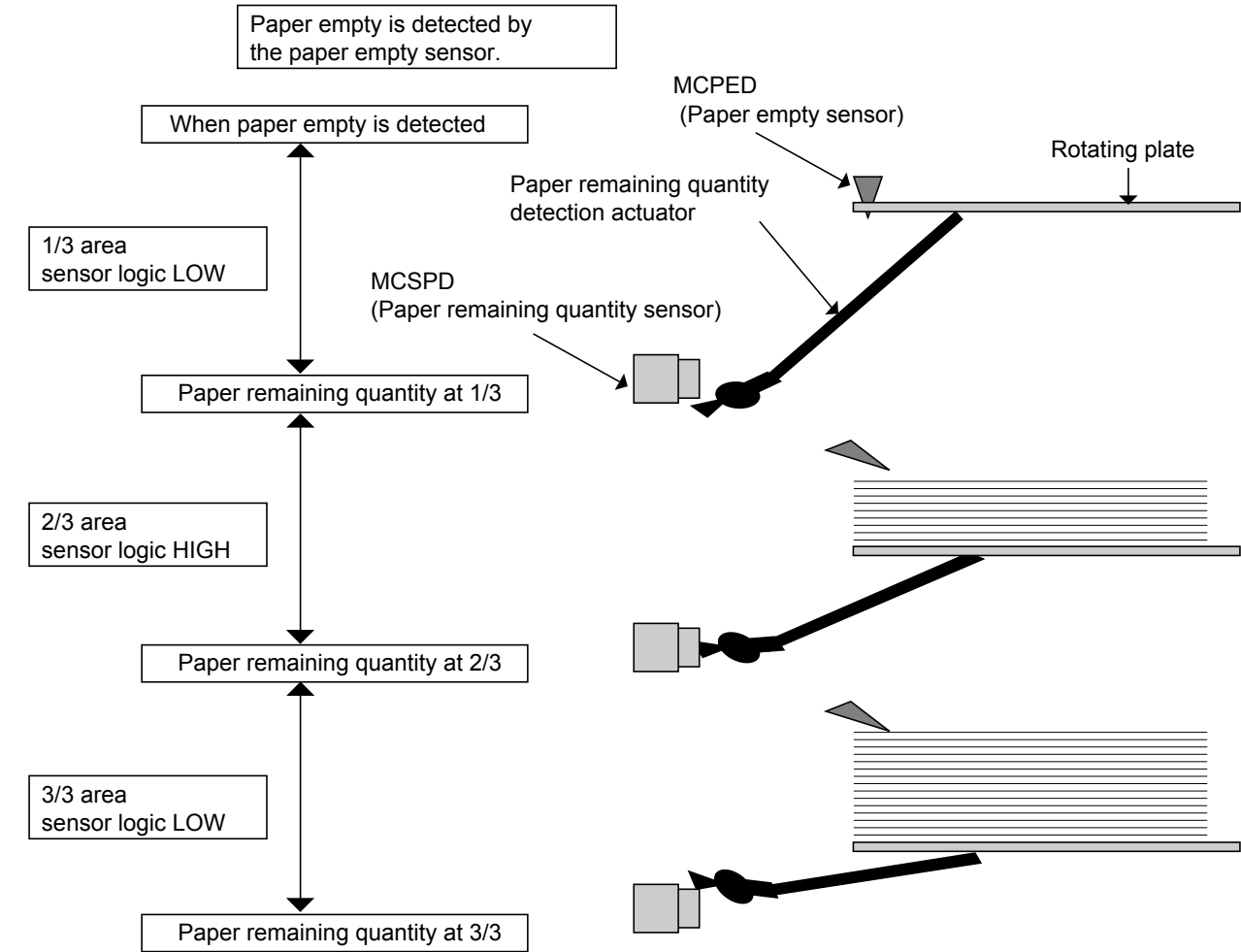
(1) Paper remaining quantity detection

Paper remaining quantity detection is common in each tray except for the manual feed tray. Remaining quantity is indicated in 3 steps plus paper empty (4 steps in total).

(2) Detection method

Paper remaining quantity is detected by the number of times of changing of the remaining quantity sensor from when the tray starts lifting up to when the upper limit sensor turns on.

(Remaining quantity sensor status change when the tray is moving up and remaining quantity)



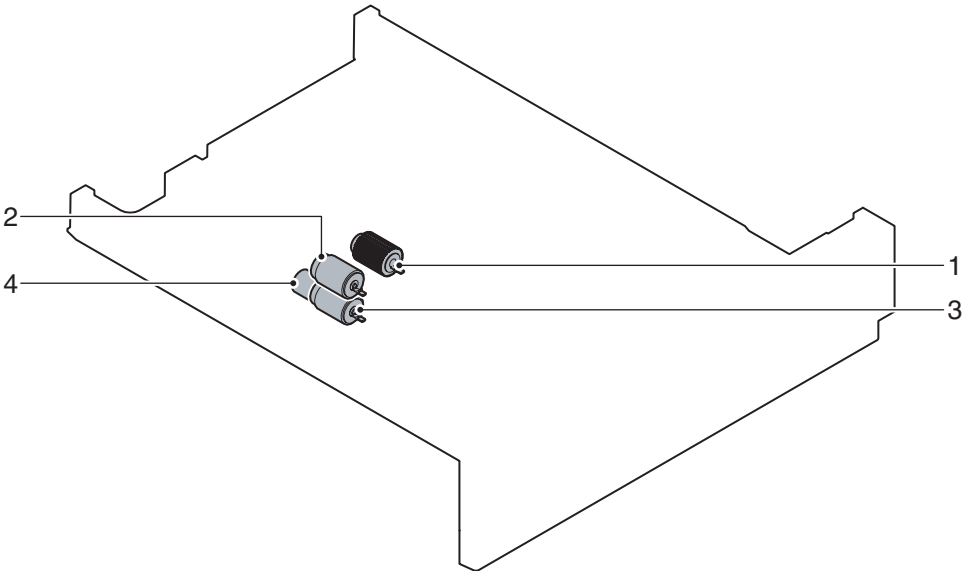
Indication of remaining quantity	Sensor status
Paper quantity: 100%	Paper quantity sensor: OFF
Paper quantity: 66%	Paper quantity sensor: ON
Paper quantity: 33%	Paper quantity sensor: OFF (2nd time)
Paper quantity: 0%	Paper sensor: OFF

D. Maintenance and parts replacement

(1) Maintenance list

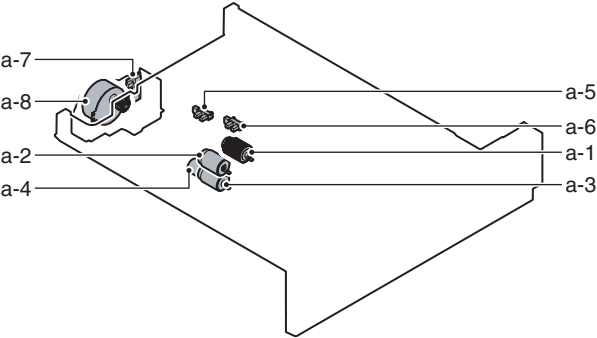
Unit name	No.	Part name	When calling	100K	200K	300K	400K	500K	600K	700K	800K	Remark
Paper feed section	1	Pick-up roller	×	×	×	×	×	×	×	×	×	Note 1
	2	Paper feed roller	×	×	×	×	×	×	×	×	×	Note 1
	3	Separation roller	×	×	×	×	×	×	×	×	×	Note 1
	4	Torque limiter	×	×	×	×	×	×	×	×	×	Note 1

Note 1: Replacement reference: Use the counter value of each paper feed port as the replacement reference.
Paper feed roller/Separation pad/Torque limiter section (Include Desk, Multi purpose): 100K or 1 years



(2) Maintenance and parts replacement

No.	Unit	Parts	
a		1 Pick-up roller	×
		2 Paper feed roller	×
		3 Separation roller	×
		4 Torque limiter	×
		5 Paper feed cassette upper limit detection	
		6 Paper feed cassette paper empty detection	
		7 Cassette detection PWB	
		8 Lift-up motor	



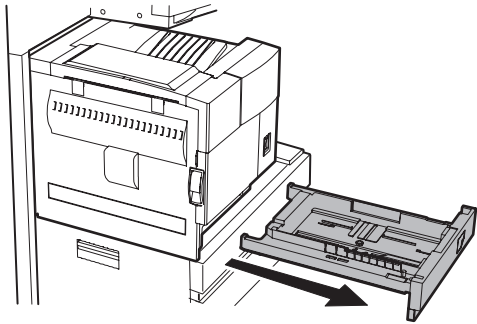
a-1. Pick-up roller

a-2. Paper feed roller

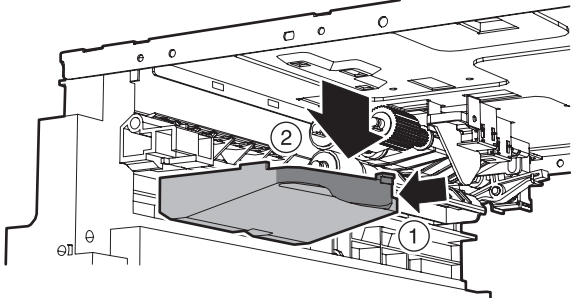
a-3. Separation roller

a-4. Torque limiter

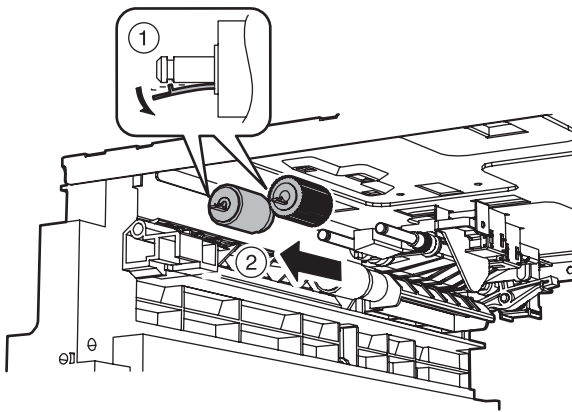
1) Pull out No. 1 paper feed tray unit.



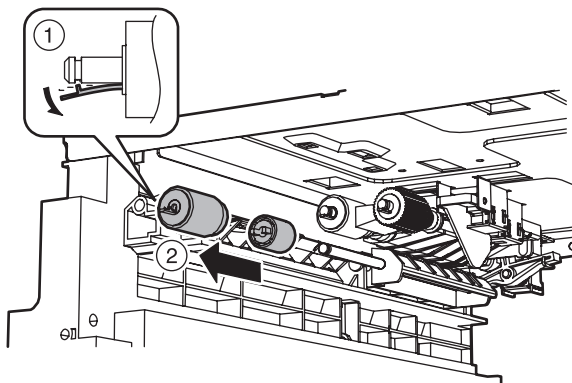
2) Disengage the pawl, and remove the paper guide.



- 3) Disengage the pawl, and remove the pickup roller and the paper feed roller.



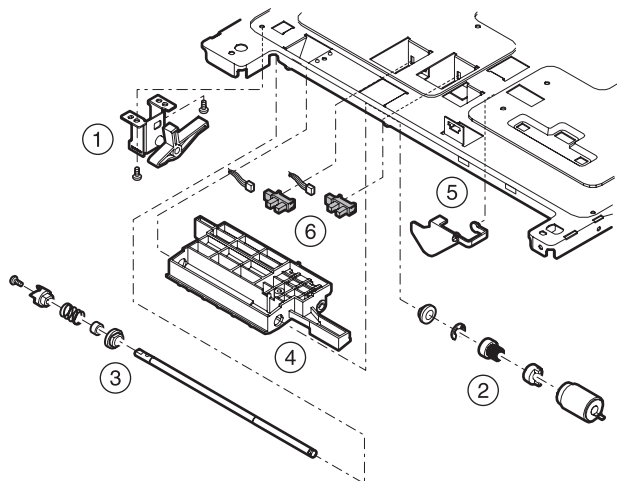
- 4) Disengage the pawl, and remove the separation roller and the torque limiter.



a-5. Paper feed cassette upper limit detection

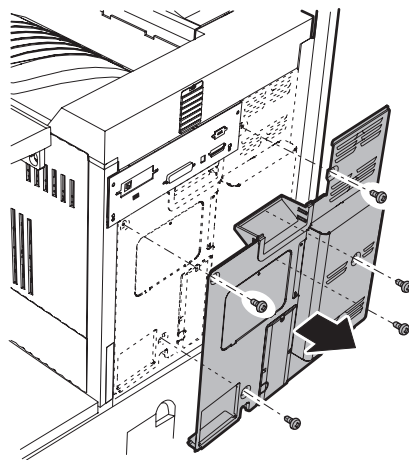
a-6. Paper feed cassette paper empty detection

- 1) Pull out No. 1 paper feed tray unit, and remove the paper guide.
- 2) Remove the screw, and remove the pickup roller arm.
- 3) Remove the paper feed roller and each part.
- 4) Remove the pickup roller shaft, and remove the pickup roller guide.
- 5) Remove the actuator.
- 6) Remove the connector, the paper feed cassette upper limit detection, and the paper feed cassette paper empty detection.

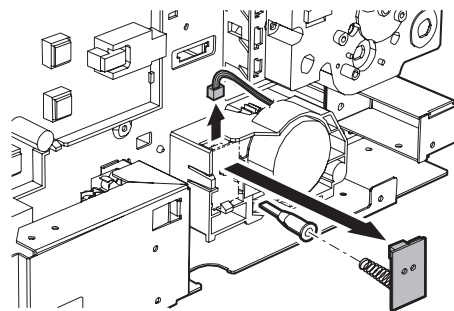


a-7. Cassette detection PWB

- 1) Remove the screw, and remove the rear cabinet.

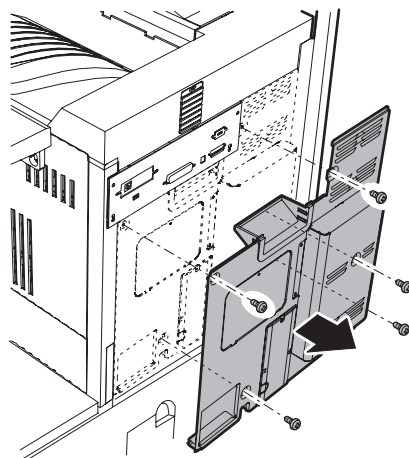


- 2) Remove the connector, and remove the cassette detection PWB.

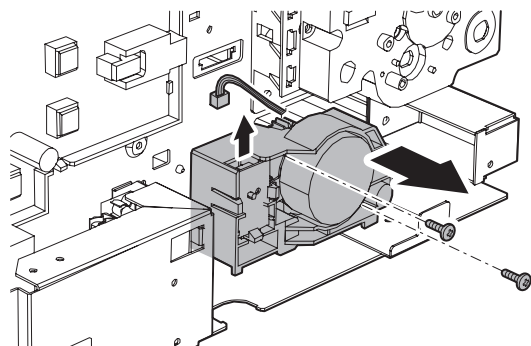


a-8. Lift-up motor

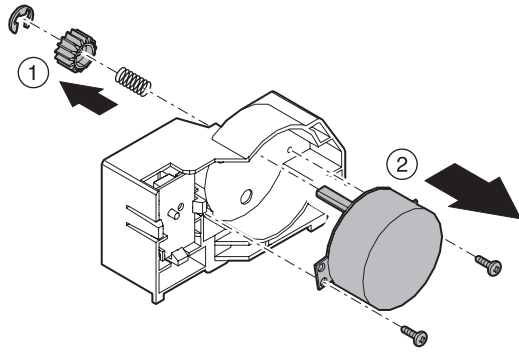
- 1) Remove the screw, and remove the rear cabinet.



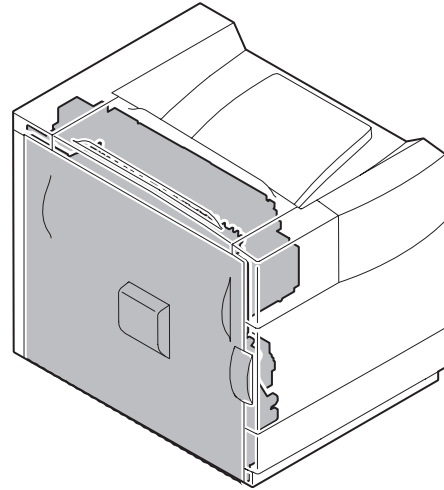
- 2) Remove the connector and the screw, and remove the lift-up motor unit.



- 3) Remove the E-ring, the gear, and the spring.
- 4) Remove the screw, and remove the lift-up motor.



4. Transport section/Paper exit reverse section



A. General

In this paper transport section, paper fed from each paper feed port is transported to the resist roller section, where the lead edge of the paper is aligned with the lead edge of images on the OPC drum. Images are transferred onto paper in the transfer section, and the paper is discharged face-up or face-down through the fusing section.

[illegible]

MX-M350/M450 N/U MAINTENANCE AND DETAILS OF EACH SECTION 7 - 34

Code	Signal name	Name	Function/Operation	Type	Note
RRC	RRC	Resist roller clutch	Resist roller ON/OFF control	Electromagnetic clutch	
TRC	TRC	Paper transport roller clutch	Paper transport roller ON/OFF control	Electromagnetic clutch	
MM	MM	Main motor	Drives the paper transport and resist roller	DC brushless motor	Paper pass

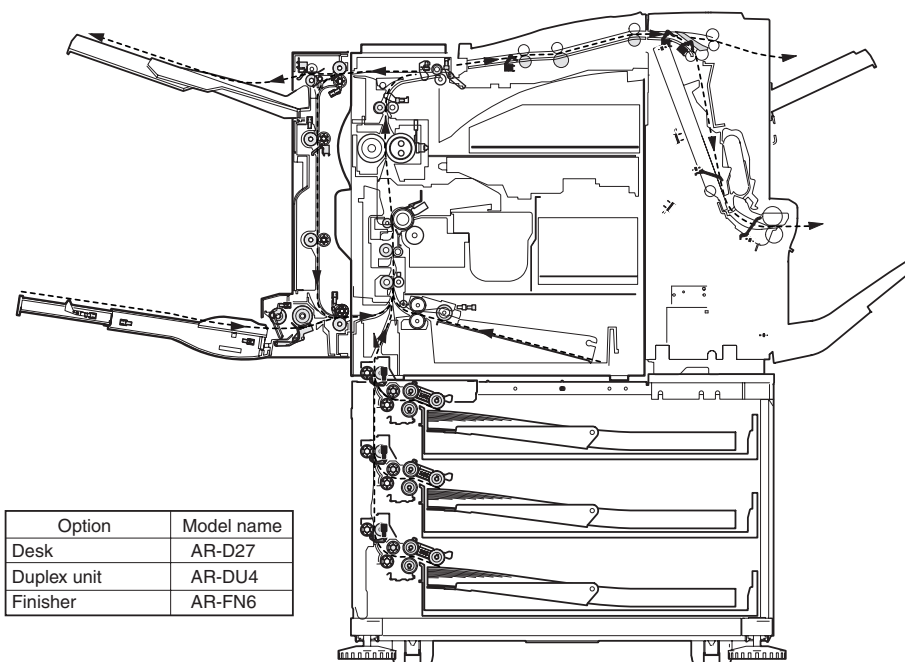
No.	Name	Function
1	Transport roller 15	Transports paper to the transport resist roller.
2	Resist roller (Drive)	Transports paper to the transfer section. / Controls the transport timing of paper to adjust the relationship between images and paper.
4	Paper exit and transport roller	Transports paper from the fusing roller to the paper exit roller.
5	Paper exit roller	Discharges paper to the paper exit tray. / Switchbacks paper.

C. Operational descriptions

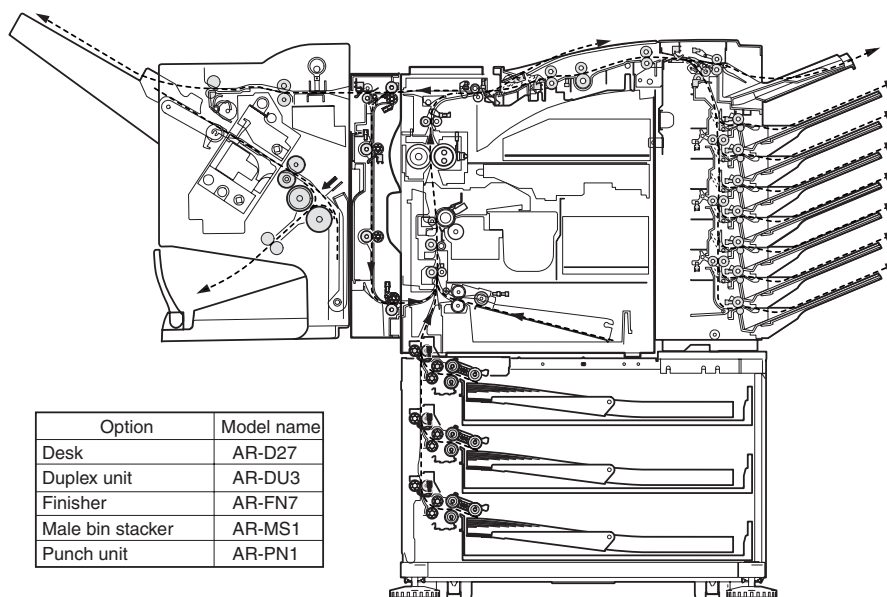
[Paper transport path and paper exit]

Paper transport path with an option installed

1.



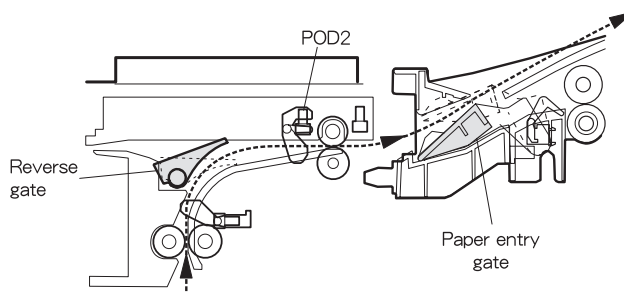
2.



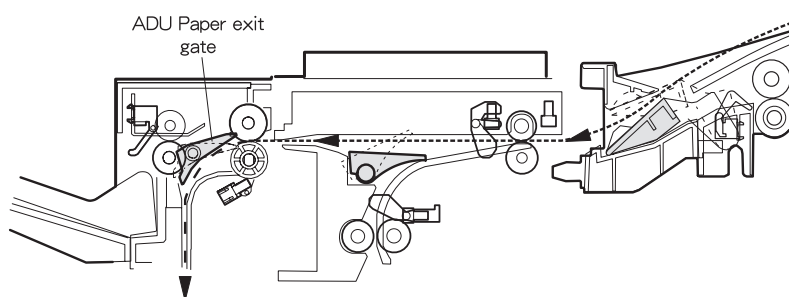
3. Paper transport in duplex printing (with AR-DU3/DU4 installed)

(1) Switchback operation and paper exit to the left tray

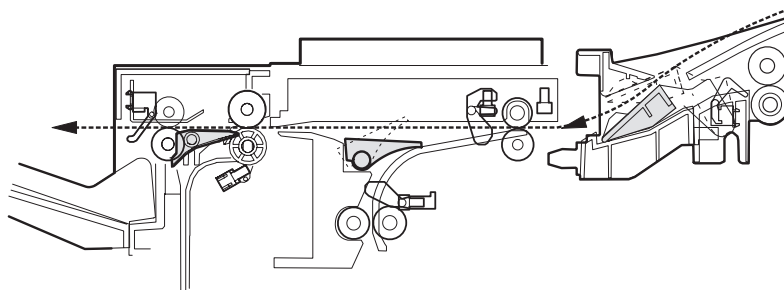
- 1) Paper transported from the fusing section is sent to the paper exit section of the machine.
- 2) When the male bin stacker (AR-MS1) or the finisher (AR-FN5) is installed, the paper entry gate solenoid (FGS) selects the paper entry gate to discharge paper outside the machine.
- 3) The paper exit sensor (POD2) detects the rear edge of paper, and the paper exit motor (POM) is rotated reversely.



- 4) Paper is taken into the machine again, passed over the reverse gate, and transported to the duplex unit.
- 5) When duplex printing is made, the ADU gate solenoid switches to the upper side of the ADU paper exit gate to switch the paper path to the ADU.



- 6) When paper is discharged to the left tray or when paper is transported to the console finisher (AR-FN7), the ADU gate solenoid switches to the lower side of the ADU paper exit gate to switch the paper path to the ADU.



(2) Paper transport speed in duplex printing

The transport speed may be doubled in duplex printing depending on the paper position.

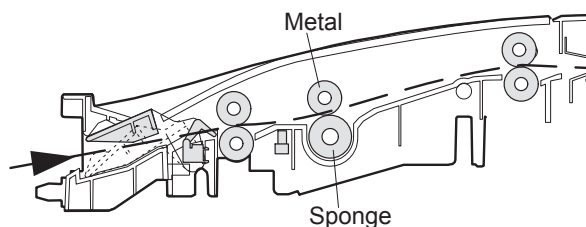
The positions of double speed are as follows:

- 1) From when the rear edge of paper passes the fusing section to when switchback operation is started.
- 2) From switchback operation, after the lead edge of paper passes APPD1, until a certain amount is transported.
- 3) After that, paper is stopped at the ADU paper feed position, and fed to the laser printer again.

4. Transport with AR-FN6 installed

The AR-FN6 is provided with the decurler to improve alignment capability of finishing.

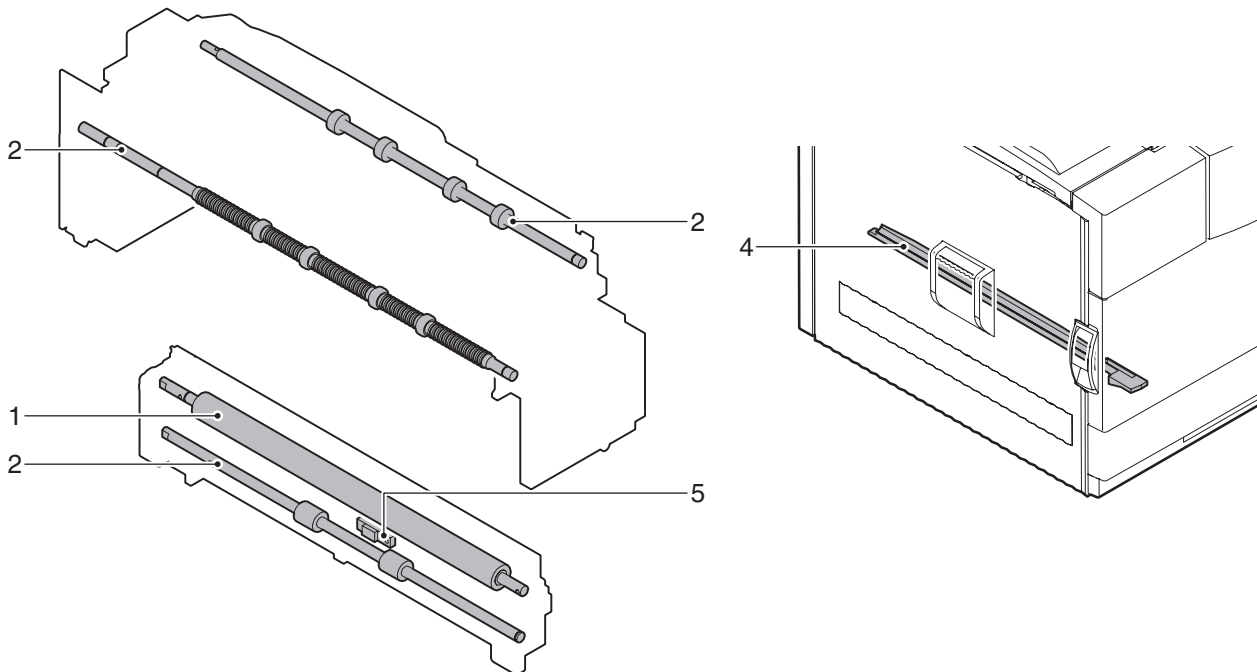
The decurler makes decurling against curling of paper by means of the difference in rigidity of the upper roller (metal) and the lower roller (sponge).



D. Maintenance and parts replacement

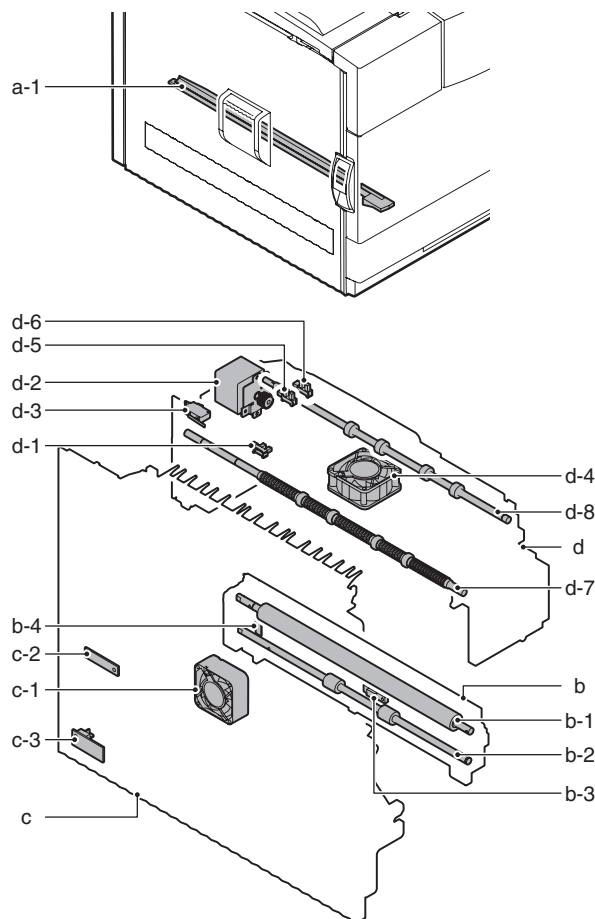
(1) Maintenance list

Unit name	No.	Part name	When calling	100K	200K	300K	400K	500K	600K	700K	800K	Remark
Transport section/ Paper exit reverse section	1	Resist roller	×	○	○	○	○	○	○	○	○	
	2	Transport rollers	×	○	○	○	○	○	○	○	○	
	3	Transport paper guides	○	○	○	○	○	○	○	○	○	
	4	Paper dust remover unit	○	○	▲	○	▲	○	▲	○	▲	P/G No.: [14]-51
	5	Paper transport detection										



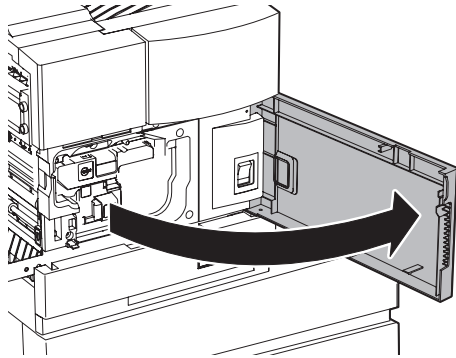
(2) Maintenance and parts replacement

No.	Unit	Parts		
a		1	Paper dust remover unit	○
b	Resist roller unit	1	Resist roller	×○
		2	Paper transport roller	
		3	Paper transport detection	
		4	High voltage resistor PWB	
c	Left door unit	1	Suction fan motor	
		2	High voltage resistor PWB	
		3	Drawer PWB	
d	Paper exit reverse unit	1	Paper exit detection 1	
		2	Paper exit motor	
		3	Left door open/close detection	
		4	Exhaust heat fan motor	
		5	Paper exit detection 2	
		6	Paper exit full detection	
		7	After-fusing roller	
		8	Paper exit roller	

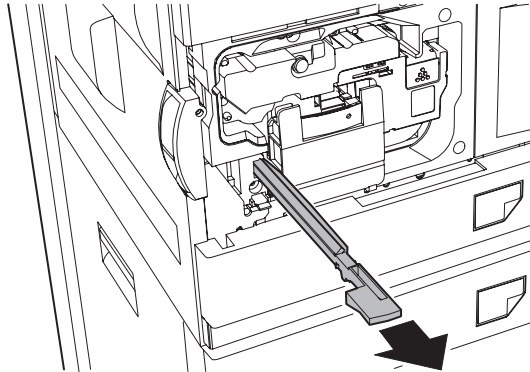


a-1. Paper dust remover unit

- 1) Open the front door.

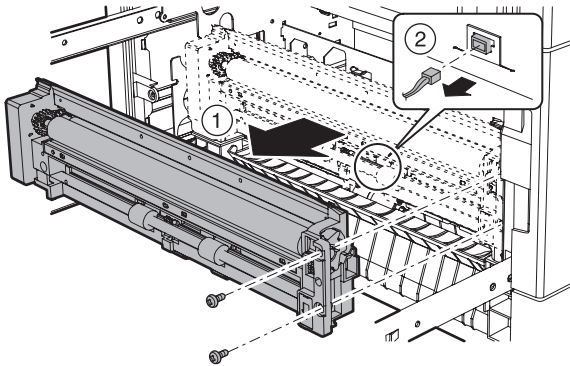


- 2) Remove the paper dust cleaner unit.



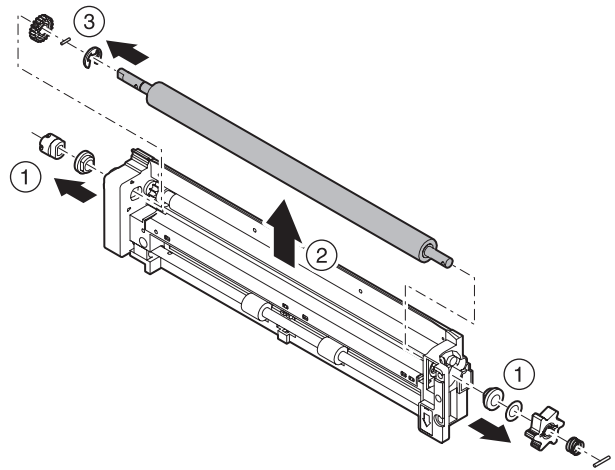
b. Resist roller unit

- 1) Remove the paper dust cleaner unit.
- 2) Remove the screw, and remove the resist roller unit. Disconnect the connector.



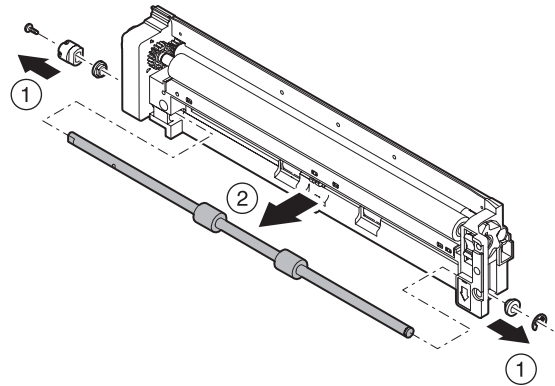
b-1. Resist roller

- 1) Remove the paper dust cleaner unit.
- 2) Remove the resist roller unit.
- 3) Remove the parts, and remove the resist roller.
- 4) Remove the gear, the parallel pin, and the E-ring.



b-2. Paper transport roller

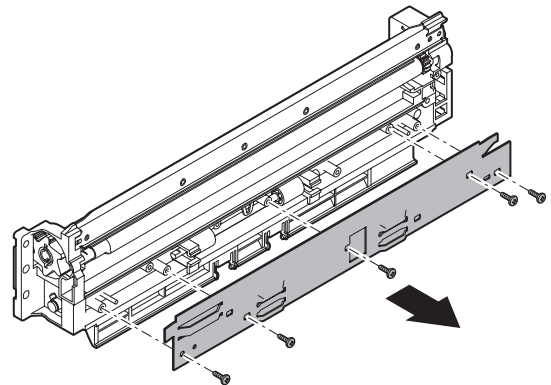
- 1) Remove the paper dust cleaner unit.
- 2) Remove the resist roller unit.
- 3) Remove the parts, and remove the paper transport roller.



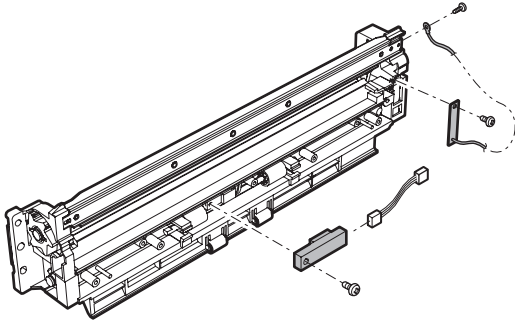
b-3. Paper transport detection

b-4. High voltage resistor PWB

- 1) Remove the paper dust cleaner unit.
- 2) Remove the resist roller unit.
- 3) Remove the screw, and remove the paper dust cleaner guide.

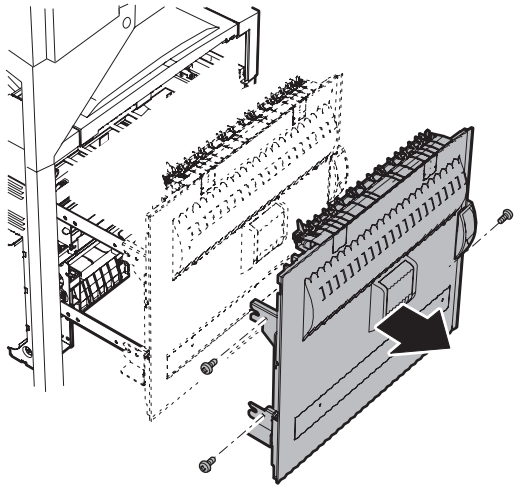


- 4) Remove the screw and the connector, and remove the paper transport detector.
- 5) Remove the screw and the earth wire, and remove the high voltage resistor PWB.



c. Left door unit

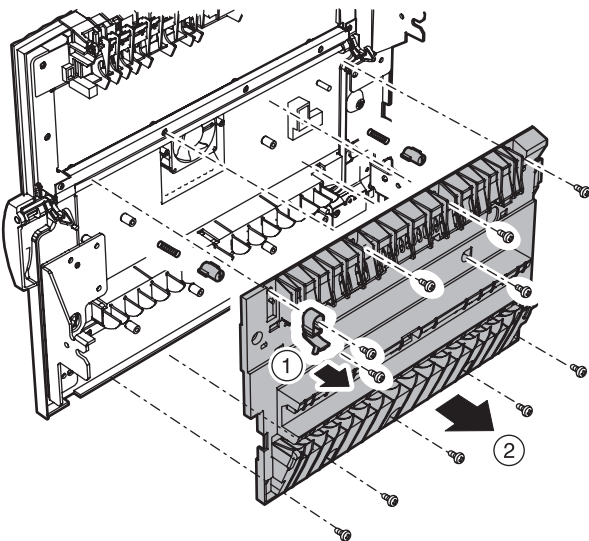
- 1) Remove the screw, and remove the left door unit.



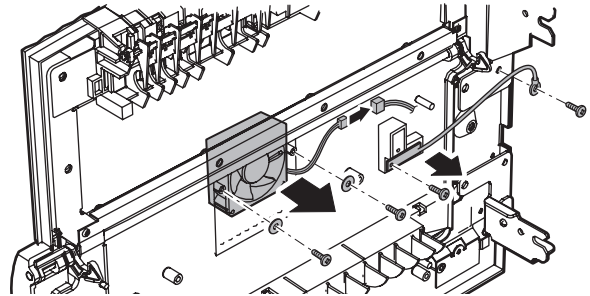
c-1. Suction fan motor

c-2. High voltage resistor PWB

- 1) Remove the left door unit.
- 2) Remove the screw, and remove the transfer lock pawl.
- 3) Remove the screw, and remove the left door transport paper guide.



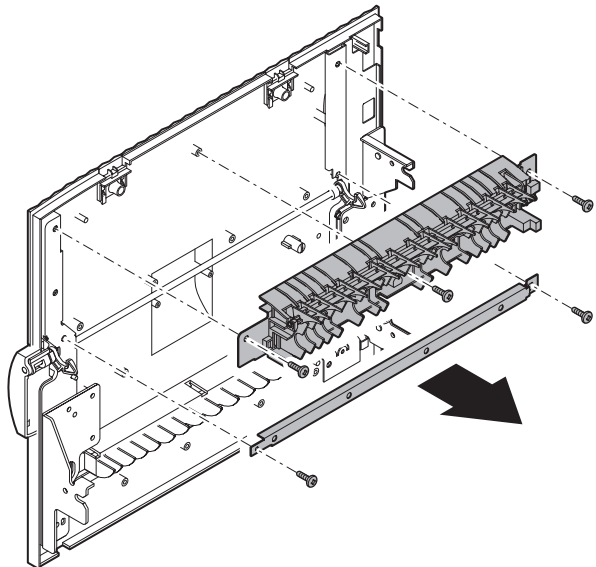
- 3) Remove the connector, the screw, and the washer, and remove the suction fan motor.
- 4) Remove the screw, and remove the high voltage resistor PWB.



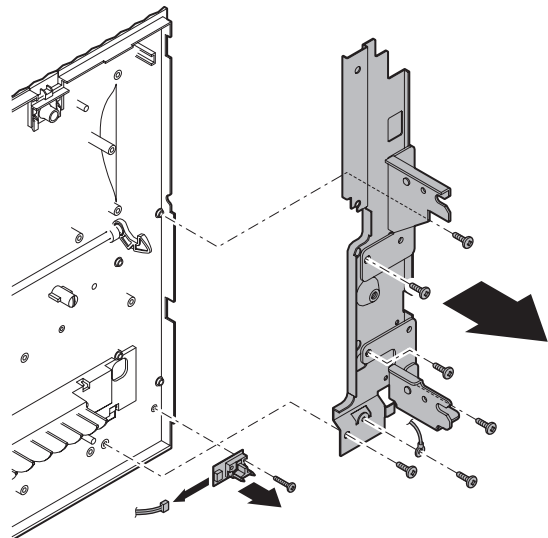
* When installing the fan, check the left door indication arrow and note the fan direction.

c-3. Drawer PWB

- 1) Remove the left door unit.
- 2) Remove the left door transport paper guide.
- 3) Remove the screw, and the reverse gate unit and remove the angle.

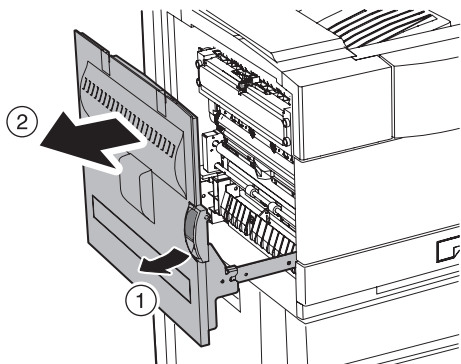


- 4) Remove the screw, and remove the angle.
- 5) Remove the connector, the screw, and remove the drawer PWB.

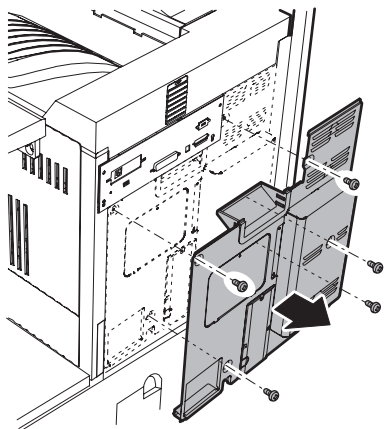


d. Paper exit reverse unit

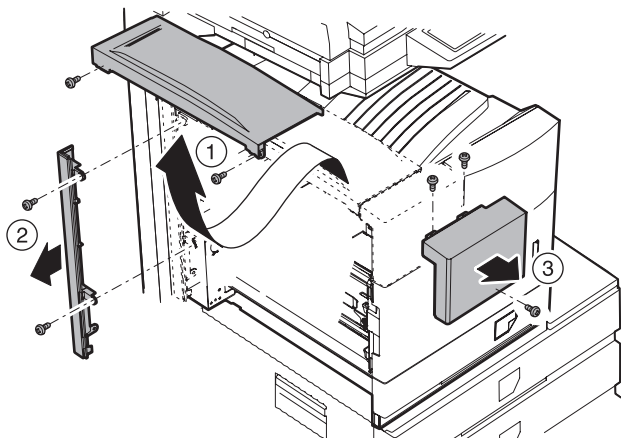
- 1) Pull out the left door.



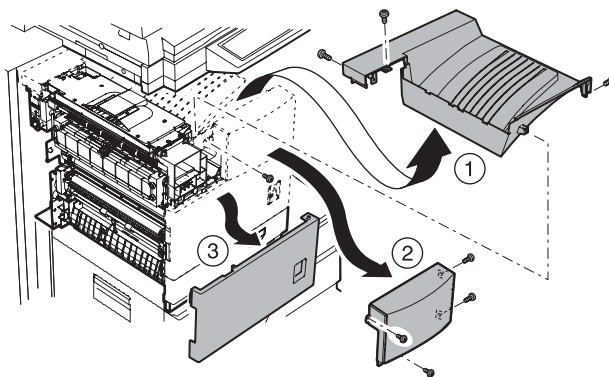
- 2) Remove the screw, and remove the rear cabinet.



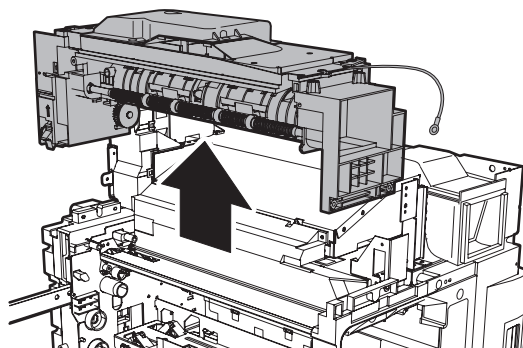
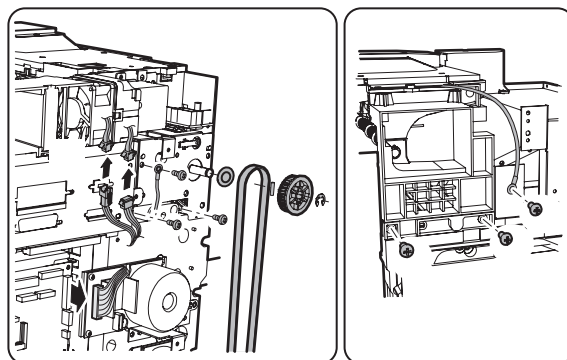
- 3) Remove the screw, and remove the paper exit upper cabinet.
- 4) Remove the screw, and remove the left rear cabinet.
- 5) Remove the screw, and remove the front left upper cabinet.



- 6) Remove the screw, and remove the paper exit tray cabinet.
- 7) Remove the screw, and remove the front right upper cabinet.
- 8) Remove the front door.

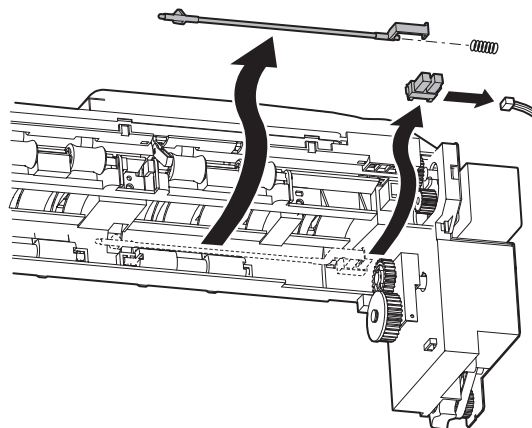


- 9) Remove the E-ring and the parts.
- 10) Remove the screw and the connector, and remove the paper exit reverse unit.



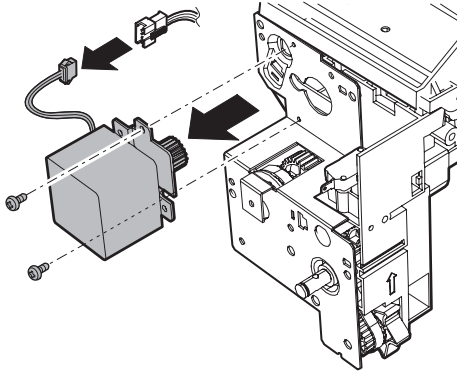
d-1. Paper exit detection 1

- 1) Remove the paper exit reverse unit.
- 2) Remove the actuator. Remove the connector, and remove the paper exit detection 1.



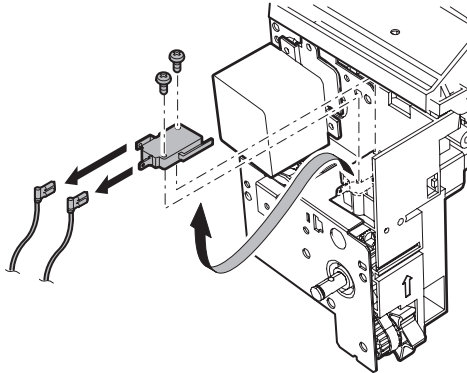
d-2. Paper exit motor

- 1) Remove the paper exit reverse unit.
- 2) Remove the connector and the screw, and remove the paper exit motor.



d-3. Left door open/close detection

- 1) Remove the paper exit reverse unit.
- 2) Remove the connector and the screw, and remove the left door open/close detection.

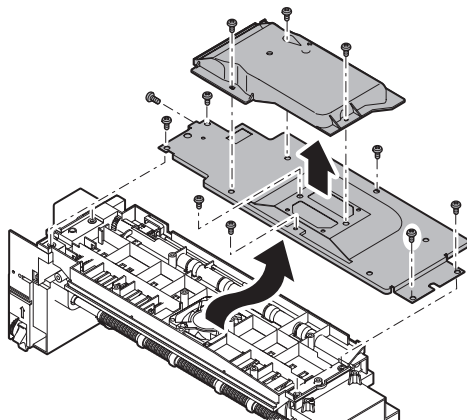


d-4. Exhaust heat fan motor

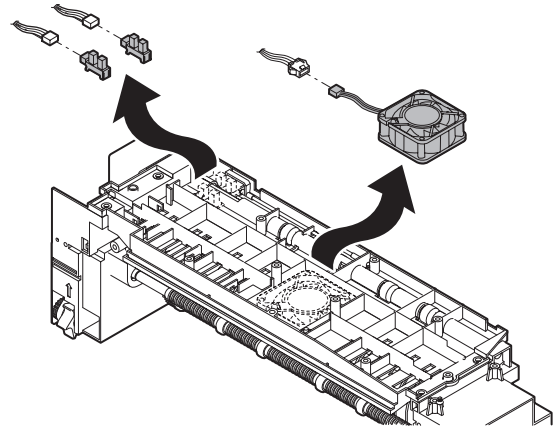
d-5. Paper exit detection 2

d-6. Paper exit full detection

- 1) Remove the paper exit reverse unit.
- 2) Remove the screw, and remove the exhaust duct.
- 3) Remove the screw, and remove the paper exit upper paper guide reinforcement plate.



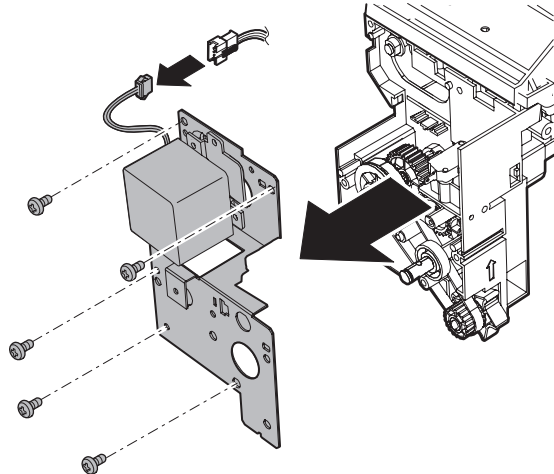
- 4) Remove the connector, the exhaust heat fan, the paper exit detection 2, the paper exit full detection.



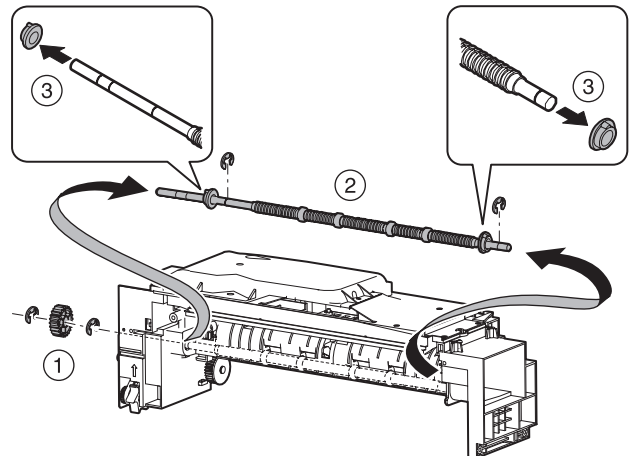
* When installing the fan, check the indication arrow and note the fan direction.

d-7. After-fusing roller

- 1) Remove the paper exit reverse unit.
- 2) Remove the E-ring and the parts.
- 3) Remove the connector and the screw, and remove the paper exit drive frame.

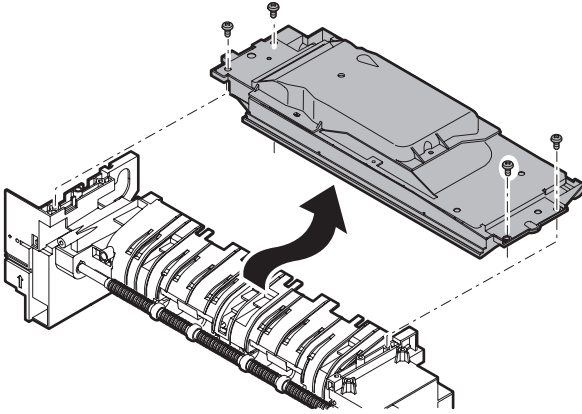


- 4) Remove the bearing, the E-ring, and the parts.
- 5) Remove the E-ring, and remove the fusing rear roller. Remove the bearing.

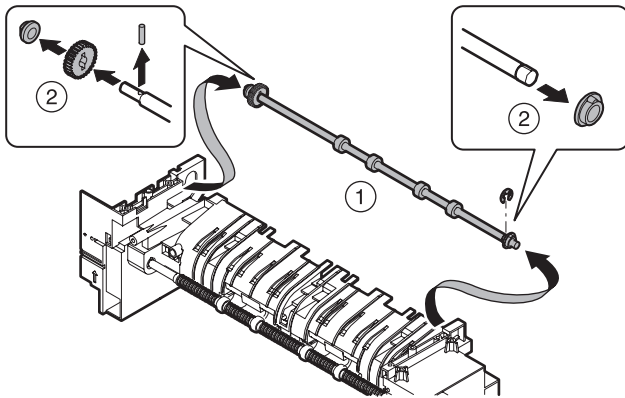


d-8. Paper exit roller

- 1) Remove the paper exit reverse unit.
- 2) Remove the screw, and remove the paper exit upper paper guide unit.



- 3) Remove the E-ring, and remove the paper exit roller. Remove the bearing, the gear, and the parallel pin.

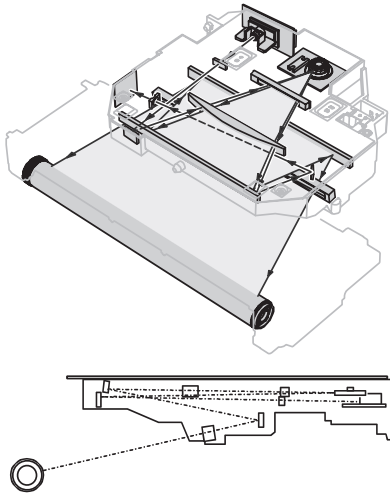


No.	Name	Function
1	Laser control PWB	Controls laser beam flashing and the output value.
2	Cylindrical lens	Converges laser beams to focus.
3	Incidence reflection mirror	Assures the optical path for laser beams.
4	No. 1 mirror	Assures the optical path for laser beams.
5	fθ lens 1	Deflects laser beams so that the laser scan speeds on the both ends of the drum and that at the center of the drum are the same.
6	fθ lens 2	
7	BD PWB	Detects the timing of laser scan start. This device is used to detect a laser trouble.
8	No. 2 mirror	Converges laser beams to focus.
9	Plane lens	Assures the optical path for laser beams.
10	Convergence lens for BD	Converges laser beams onto the BD PWB.

C. Operational descriptions

[Laser optical path]

* The LSU must not be disassembled in the market.



(1) Polygon motor

Model	Number of mirrors	RPM	Bearing	
35PPM	14	17000RPM	OIL	Superior in silence.
45PPM	14	22000RPM	OIL	

(2) Outline of LSU specifications

Effective scan width: 297mm

Resolution: 600dpi

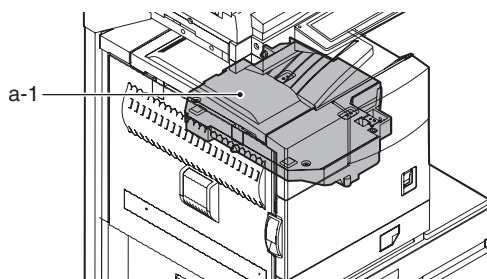
Beam diameter: Main scan = 60 - 85 μm
Sub scan = 75 - 110 μm

Laser power: 0.23±0.01mW (45 PPM)
0.19±0.01mW (35 PPM)

LD wave length: 770 - 795nm

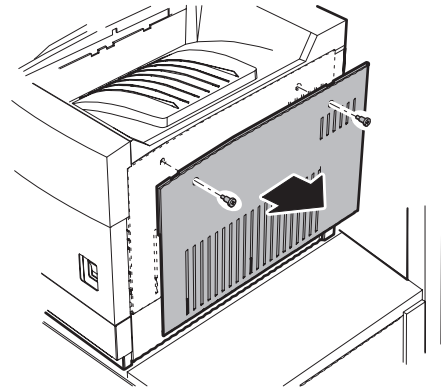
D. Maintenance and parts replacement

No.	Unit	Parts
a	1	LSU

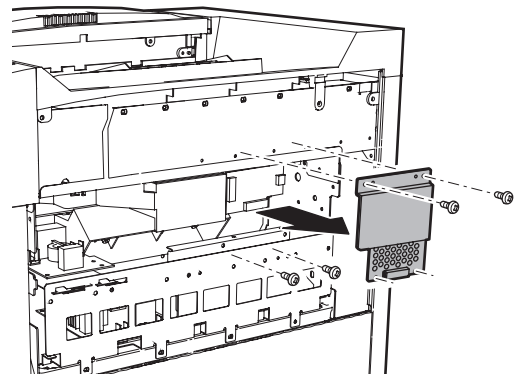


a-1. LSU

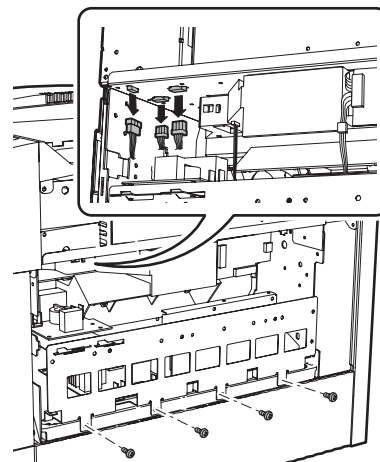
1) Remove the screw, and remove the right cabinet.



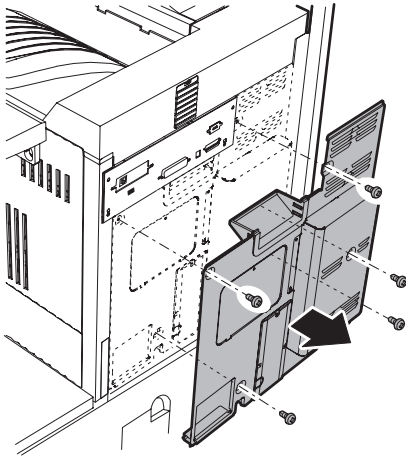
2) Remove the screw, and remove the right noise cover.



3) Remove the connector, and remove the screw.

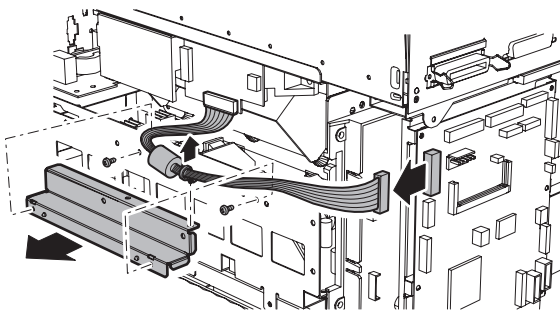


- 4) Remove the screw, and remove the rear cabinet.

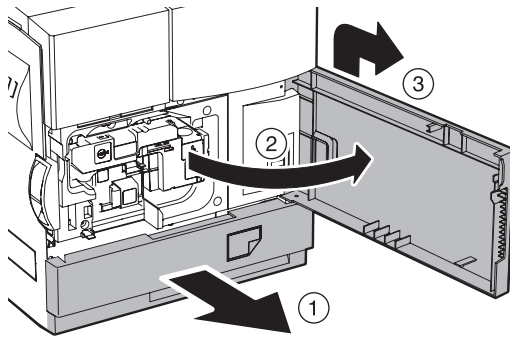


- 5) Remove the connector, the screw, and the angle. Remove the snap band.

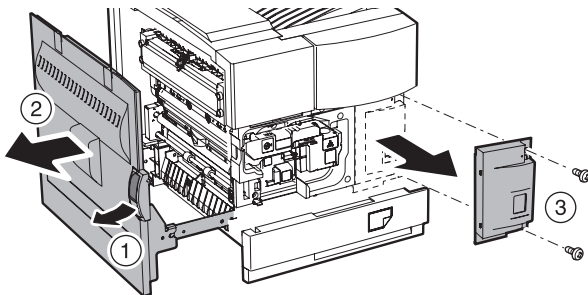
* Do not disconnect the LSU side.



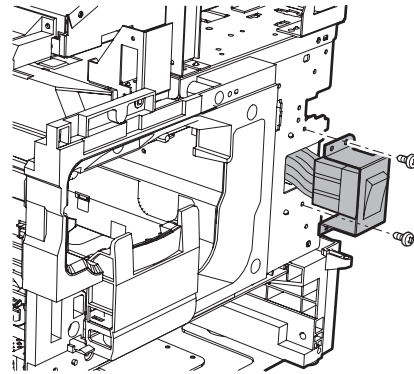
- 6) Pull out the No. 1 paper feed tray unit, and push up and remove the front door.



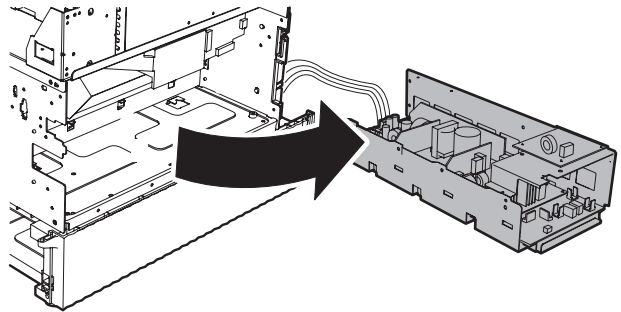
- 7) Release the lock, and pull out the left door. Remove the screw, and remove the front cover right.



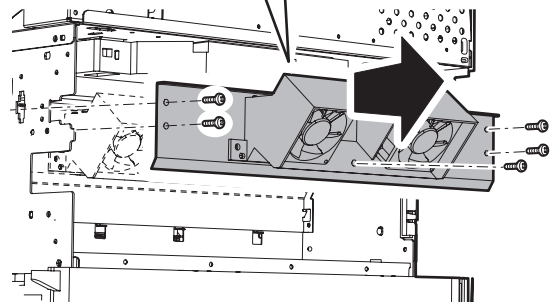
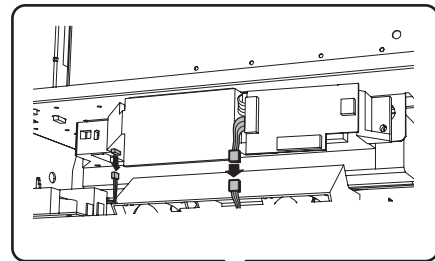
- 8) Remove the screw, and remove the main switch mounting plate.



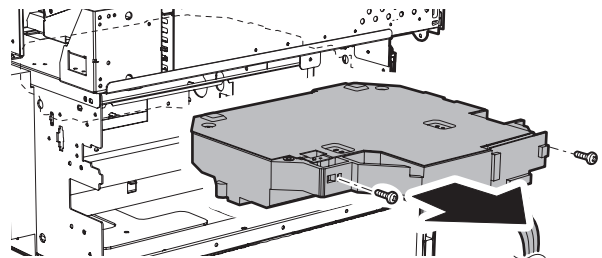
- 9) Remove the power unit.



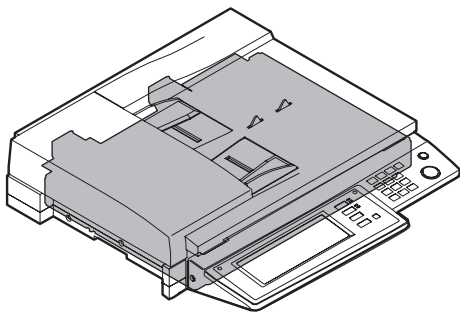
- 10) Remove the connector and the screw, and remove the duct holding cover.



- 11) Remove the screw, and remove the LSU.



6. Scanner section

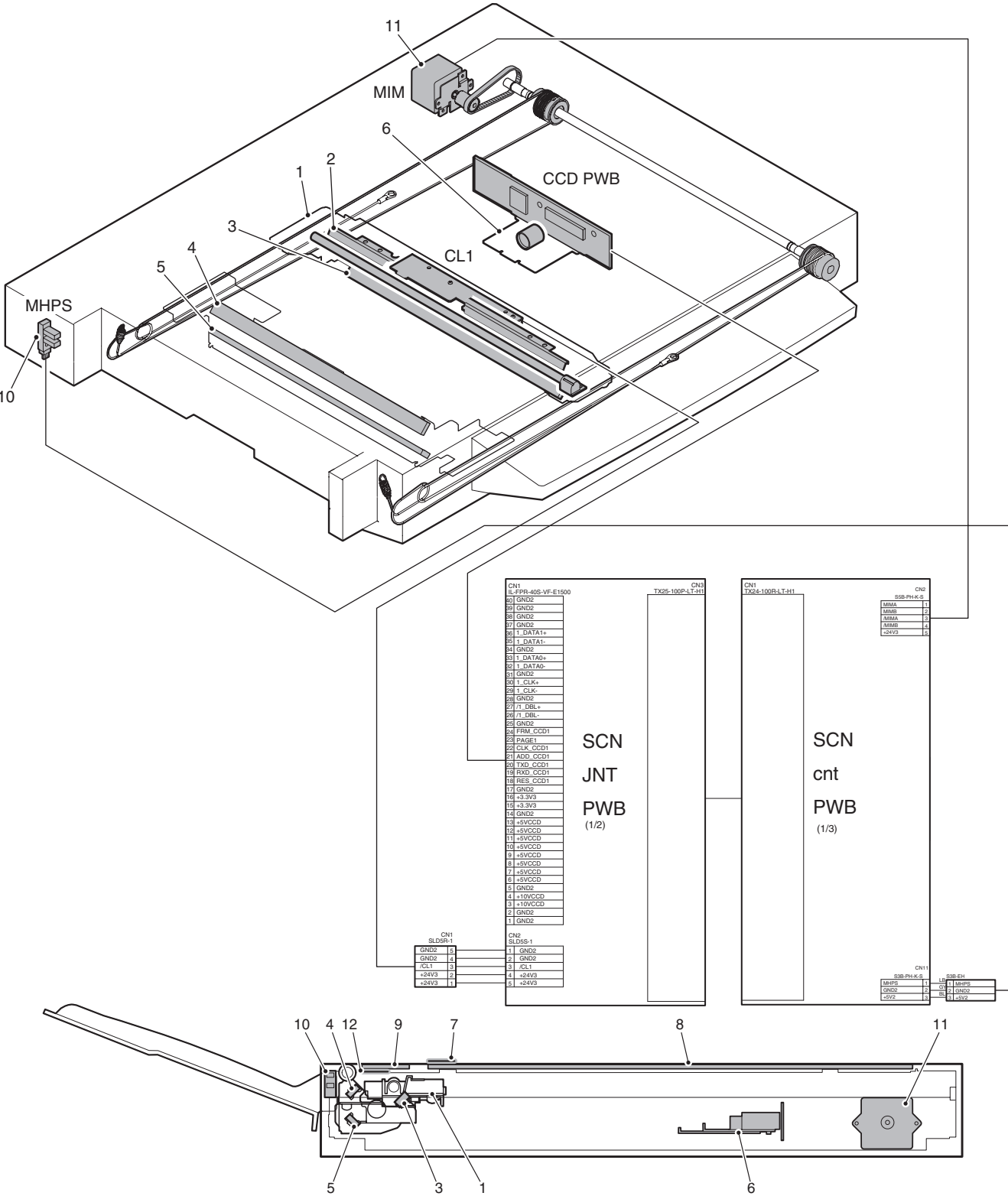


A. General

There are following three methods of scanning documents in this machine.

- a. Place a document on the table glass. The copy lamp unit is operated to radiate copy lamp light onto the document, scanning the document with the CCD.
- b. The SPF feeds a document. The lamp illuminates the document and the image is scanned into the CCD that converts it from A/D.
- c. The SPF feed a document. The LED's of the CIS unit (attached to the SPF) aluminates the back side of the document. The CIS scans the information.

B. Major parts and signal functions



Code	Signal name	Name	Function/Operation	Type	Note
MIM	MIM	Scanner (reading) motor	Drives the scanner (reading) section.	Stepping motor	
MHPS	MHPS	Scanner home position sensor detector	Scanner home position detection	Transmission type	Sensor
CL1	CL1	Copy lamp	Document exposure lamp		
CCD PWB		CCD PWB	Front document image scan (Document table/SPF mode) Converts the document images (optical signals) into electrical signals.		

No.	Name	Function
1	Copy lamp unit	Lights up to radiate documents. A xenon lamp (operating on 3.15KV) is employed.
2	Reflector	This mirror converges lights on documents.
3	No. 1 mirror	Secures the optical path between a document and No. 2 mirror.
4	No. 2 mirror	Secures the optical path between No. 1 mirror and No. 3 mirror.
5	No. 3 mirror	Secures the optical path between No. 2 mirror and the CCD.
6	CCD/Lens unit	The reduction optical type CCD (Charge Coupled Device) of 7,450 pixels is employed. The scan resolution is 600dpi. Converts photo energy reflected by the mirrors into electric energy.
7	White balance sheet	Serves as the reference sheet of white for scanning with the CCD/Lens unit. If dust or dirt is attached to this sheet, white streaks may be produced.
8	Table glass	A document is set on this glass. The glass surface is coated for protection against static electricity. A document is set to the top left corner.
9	SPF scan glass	The copy lamp unit is fixed, and a document is moved over this glass to scan line by line. The glass surface is coated for protection against static electricity. If dust or dirt is attached to this sheet, black streaks may be produced.
10	Mirror home position sensor (MHPS)	Detects the home position of the mirror base unit.
11	Scan motor	Drives the mirror base and the copy lamp unit.
12	DSPF white balance sheet	Serves as the reference sheet of white for scanning with the CIS unit. If dust or dirt is attached to this sheet, white streaks may be produced.

C. Operational descriptions

(1) CCD/lens unit

This machine employs the reduction optical-type line CCD (Charge Coupled Device) of scan resolution of 600dpi and 7450 pixels.

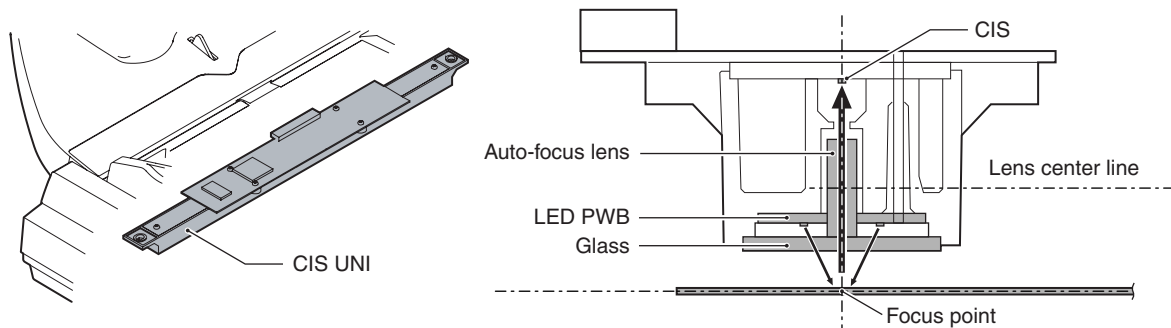
CCD scan is performed by shifting the scan positions sequentially by the carriage unit (lamp and mirror) scan or moving the document with the SPF.

Lights reflected by the document are reflected by each mirror to form images on CCD elements through the reduction-type lens. The CCD converts the optical energy into electrical energy (analog). (Photoelectric conversion)

(2) CIS unit

The image sensor which scans back document images is attached to the SPF. The close-contact type image sensor (Contact Image Sensor) with scan resolution of 600dpi and 7196 pixels is employed.

For the CIS to scan documents, the scan position is sequentially shifted by shifting the document by the SPF, and the LED light in the unit is radiated to the back of the document, and photo energy is converted into electric energy (analog signal).

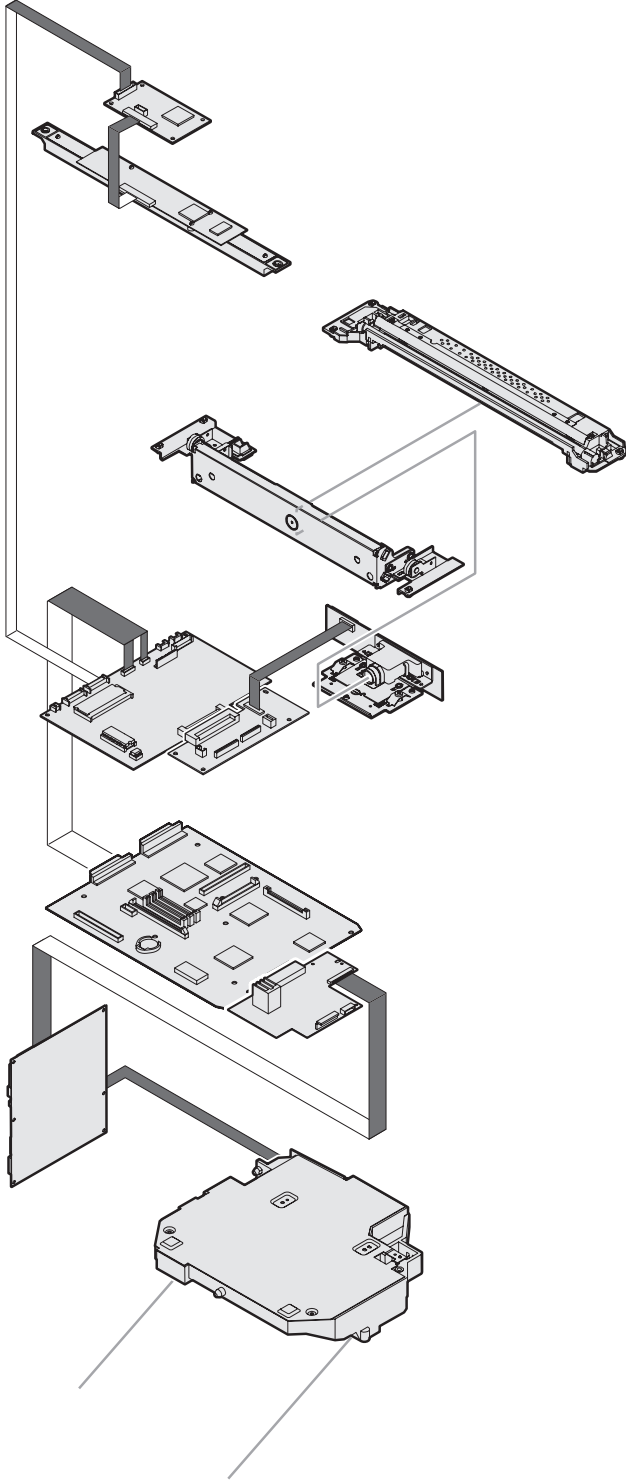


(3) Image signal flow

The image signal converted into electric energy (analog signal) is A-D converted on the CCD PWB. Image processes such as white balance and shading correction are performed on the scanner control PWB. The image signal is then sent through the mother board to the MFP control PWB.

In the MFP control PWB, image process is performed according to the setting content of the operation panel. The image data are converted into laser lighting signals (VIDEO signals), and sent through the mother PWB and the PCU to the LSU (Laser Scan Unit).

In the LSU, the VIDEO signals are converted into laser beams, which are radiated onto the drum.



(4) Carriage (lamp unit) shift (scan) speed

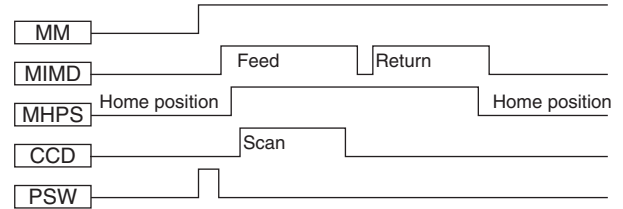
The carriage scan speed depends on the copy magnification ratio.

Speed up to 171% = 110mm/s

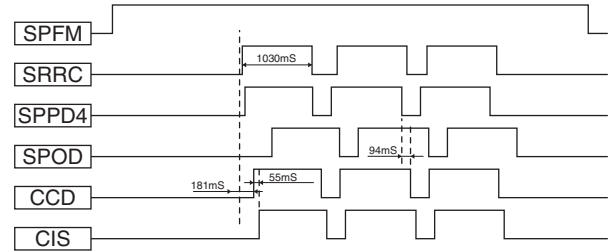
Speed of 172% - 400% = 55mm/s

(5) Timing chart

Platen timing chart



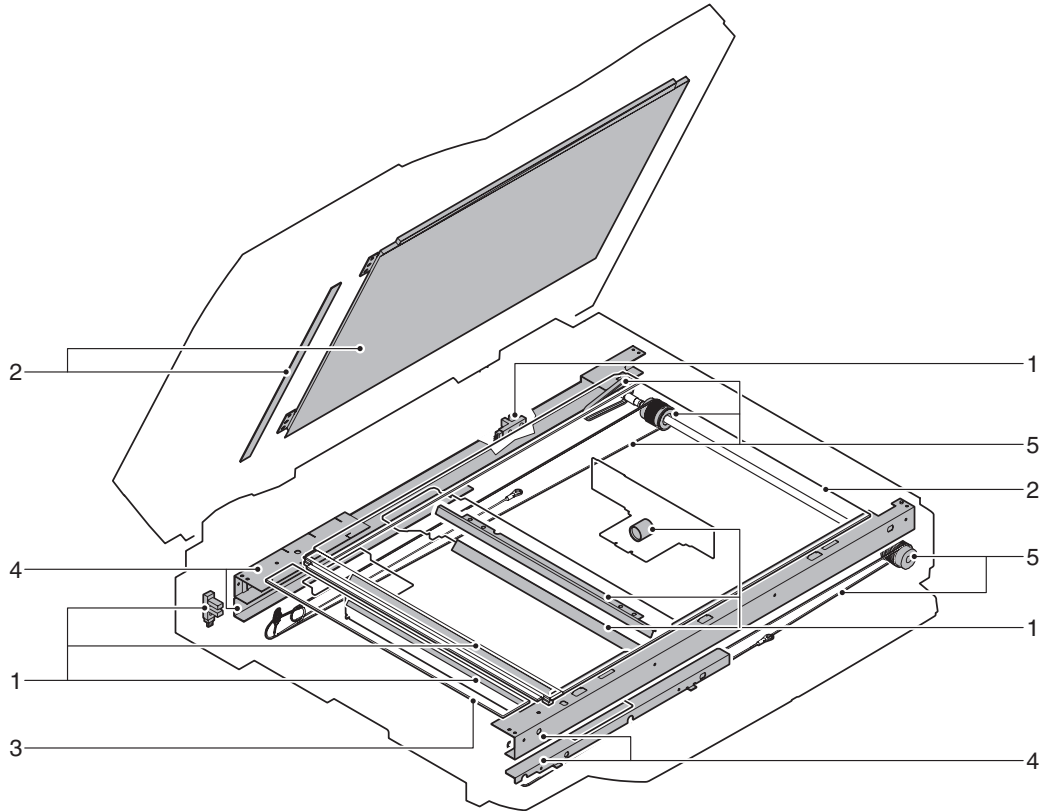
SPF duplex timing chart



D. Maintenance and parts replacement

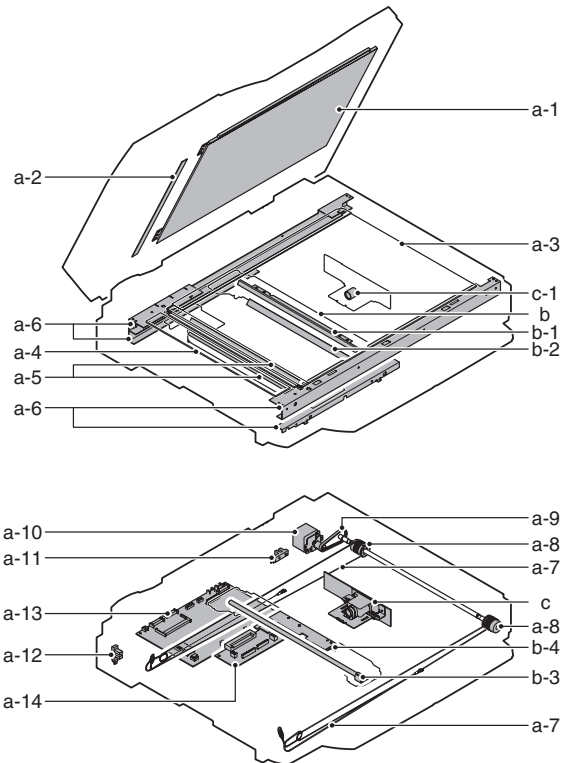
(1) Maintenance list

Unit name	Part name	When calling	100K	200K	300K	400K	500K	600K	700K	800K	Remark
Scanner section	Mirror/Lens/Reflector/Sensors	○	○	○	○	○	○	○	○	○	
	Table glass/Dust-proof glass/OC	○	○	○	○	○	○	○	○	○	
	White reference glass	○	○	○	○	○	○	○	○	○	
	Rails		☆	☆	☆	☆	☆	☆	☆	☆	
	Drive belt/Drive wire/Pulley		×	×	×	×	×	×	×	×	



(2) Maintenance and parts replacement

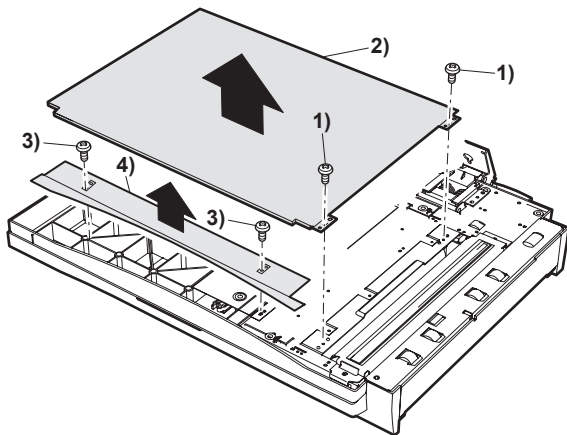
No.	Unit	Parts		
a	Scanner unit	1	OC	○
		2	Dust-proof glass	○
		3	Table glass	○
		4	White reference glass	○
		5	Mirror	○
		6	Rails	☆
		7	Drive wire	×
		8	Pulley	×
		9	Drive belt	×
		10	Scan motor	
		11	OC open sensor	
		12	Mirror home position sensor	
		13	Scanner control PWB	
		14	Scanner interface PWB	
b	Lamp unit	1	Reflector	○
		2	Mirror	○
		3	Lamp	
		4	Inverter PWB	
c	CCD lens PWB unit	1	CCD lens	



a. Scanner unit

a-1. OC

- 1) Remove the OC cover.

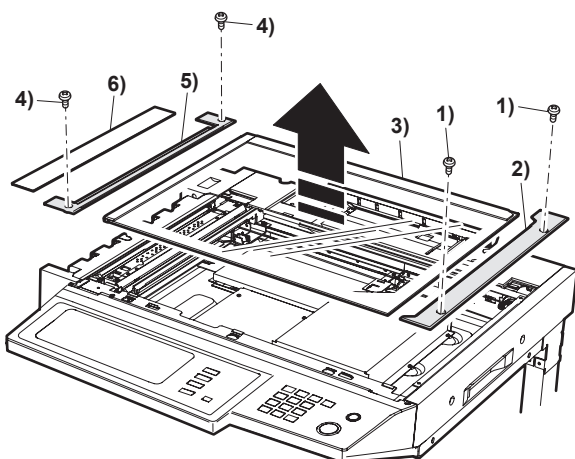


a-2. Dust-proof glass

a-3. Table glass

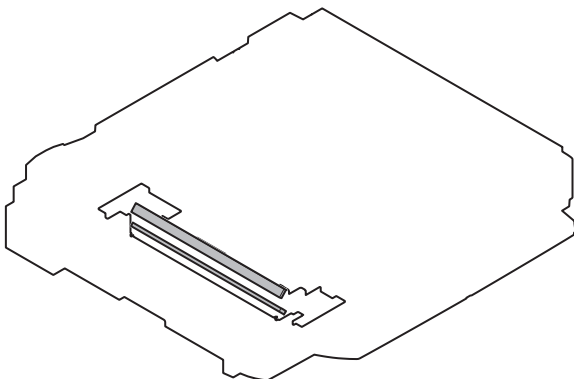
a-4. White reference glass

- 1) Remove the table glass holder and the white reference glass holder, and remove the table glass and the white reference glass.



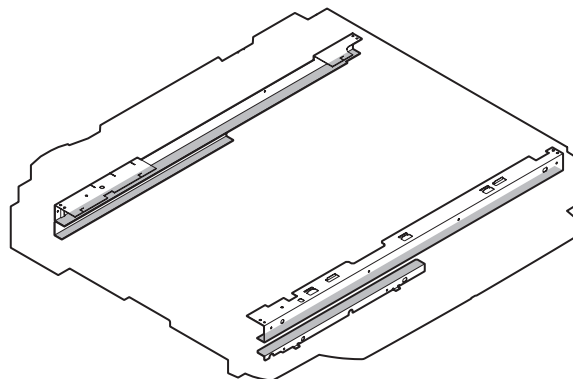
a-5. Mirror

- 1) Remove the table glass.
- 2) Clean mirror.



a-6. Rails

- 1) Remove the table glass.
- 2) Grease up the rails.

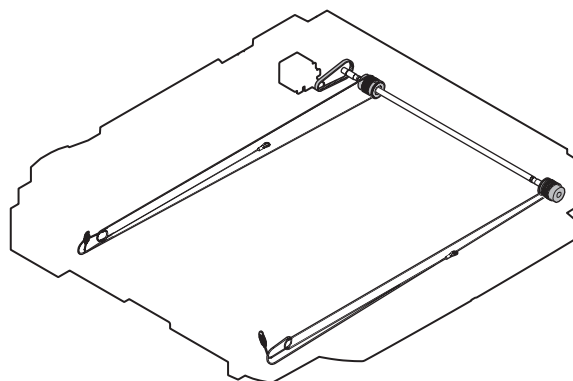


a-7. Drive wire

a-8. Pulley

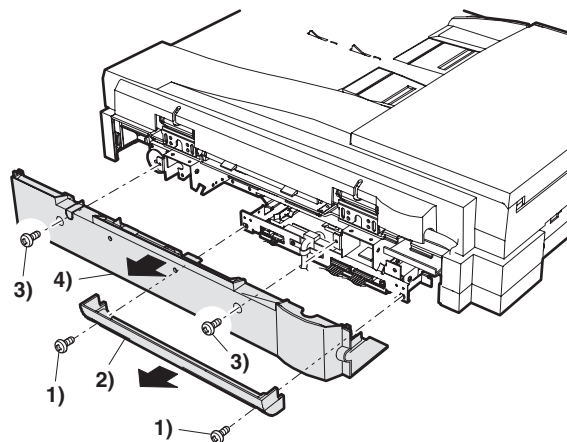
a-9. Drive belt

- 1) Remove the table glass.
- 2) Check the drive wire, pulley and drive belt.

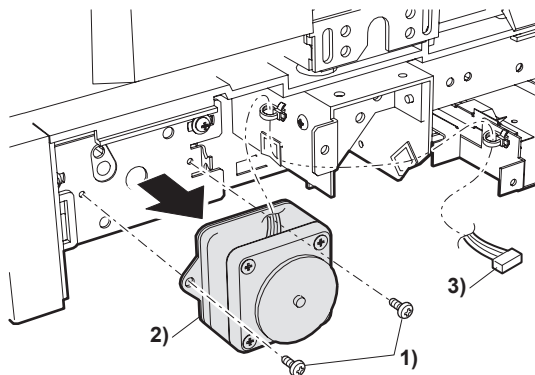


a-10. Scan motor

- 1) Remove the scanner rear cabinet and the rear lower cabinet.

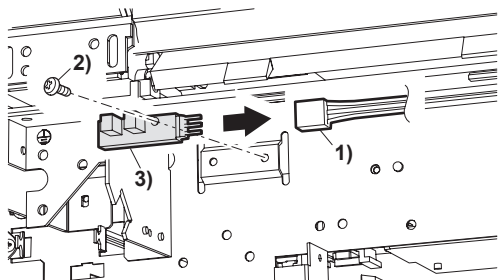


- 2) Pull out the harness from the scanner control PWB.
- 3) Remove the scan motor.



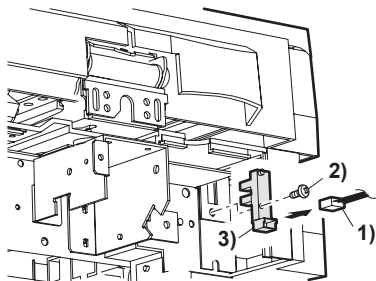
a-11. OC open sensor

- 1) Remove the rear cabinet.
- 2) Remove the OC open sensor.



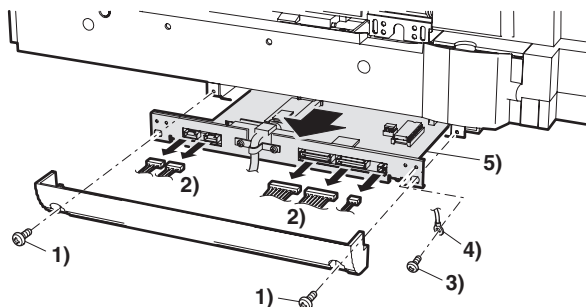
a-12. Mirror home position sensor

- 1) Remove the rear cabinet.
- 2) Remove the mirror home position sensor.



a-13. Scanner control PWB

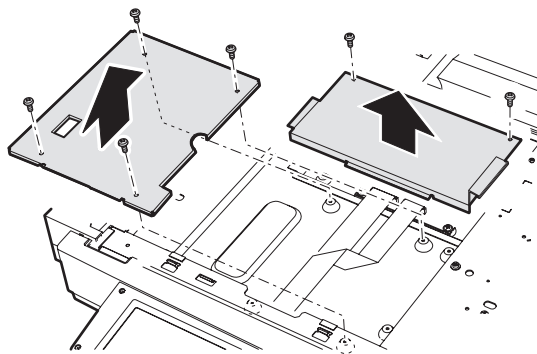
- 1) Remove the scanner rear lower cabinet.
- 2) Disconnect the connector and earth band, and pull out the scanner control PWB.



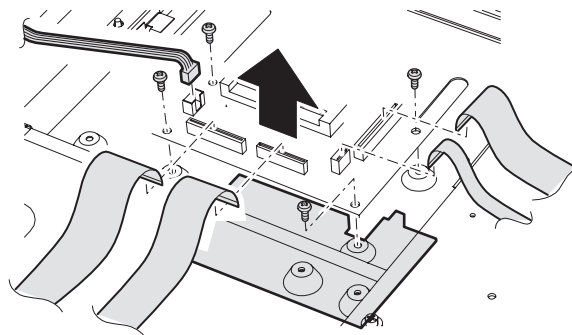
* When the scanner control PWB is replaced, the EEPROM must be replaced.

a-14. Scanner interface PWB

- 1) Remove the table glass.
- 2) Remove the PWB cover and the harness cover.

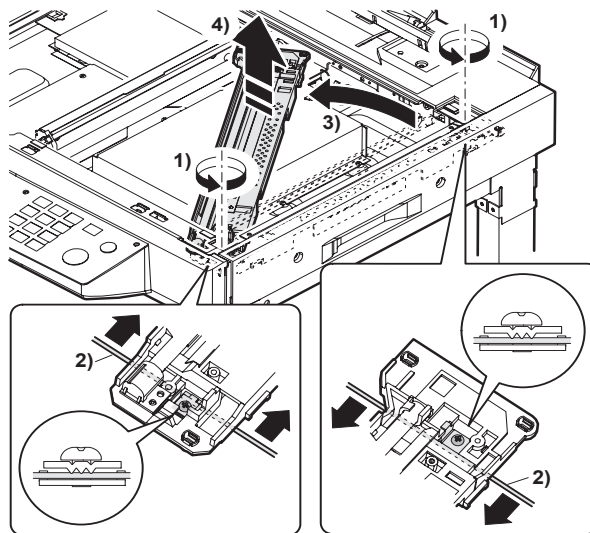


- 3) Remove the scanner interface PWB.



b. Lamp unit

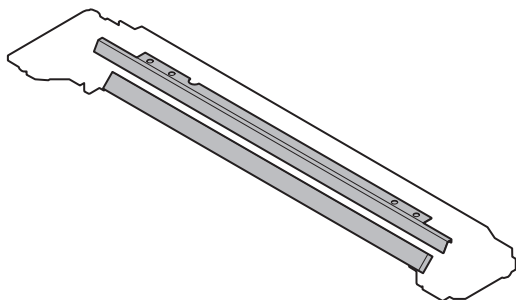
- 1) Remove the table glass.
- 2) Remove the scan lamp unit.



b-1. Reflector

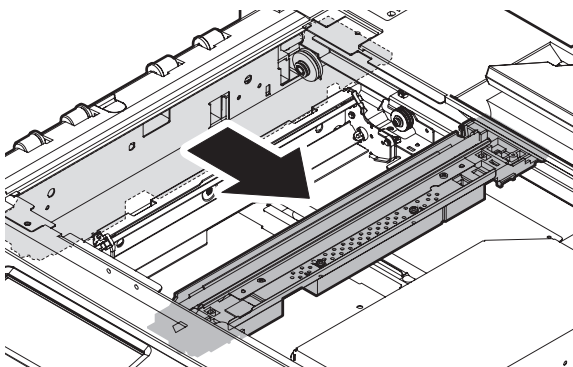
b-1. Mirror

- 1) Remove the table glass.
- 2) Clean the reflector and the mirror.

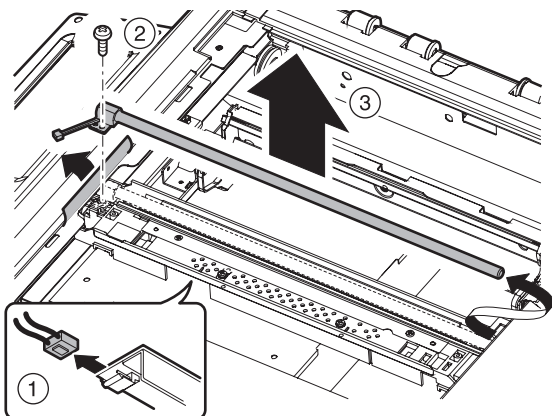


b-3. Lamp

- 1) Remove the table glass.
- 2) Slide the lamp unit base to the notch section.

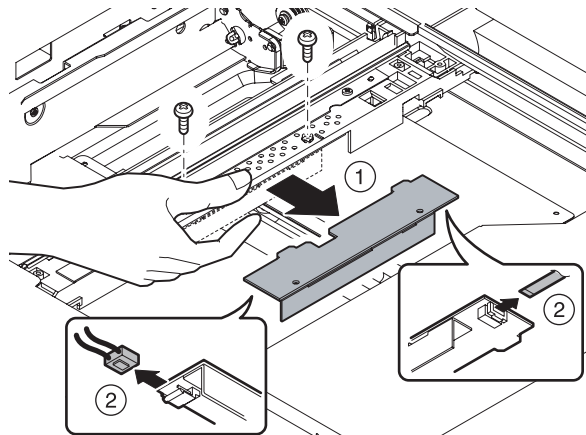


- 3) Flip the notch section Mylar and remove the screw. Slide the lamp holder to the front side, and remove it upward from the rear side. Remove the connector.



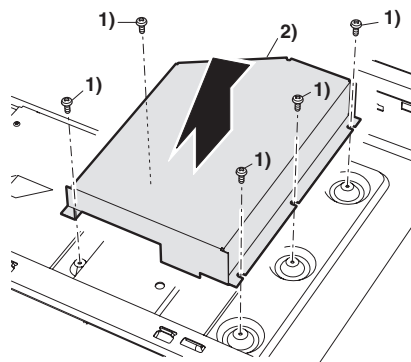
b-4. Inverter PWB

- 1) Remove the table glass.
- 2) Hold with your hand and remove the screw. Remove the connector and remove the inverter PWB.



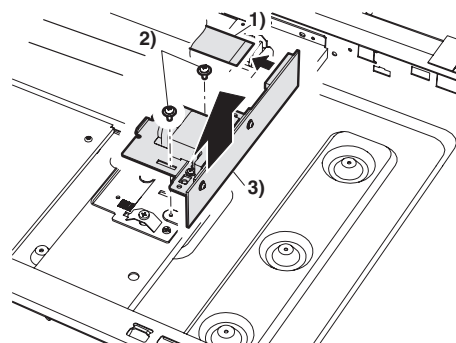
c. CCD lens PWB unit

- 1) Remove the table glass.
- 2) Remove the dark-box cover.



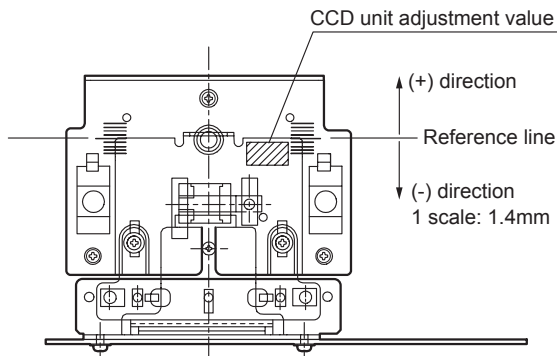
- 3) Remove the CCD lens PWB unit.

Note: Only the 2 screws marked in red may be used to remove the CCD. Do not touch any others as they are set in the factory. Failure to follow this warning will result in damaged components and the whole assembly needs to be replaced.



Note for CCD lens PWB unit installation

<1> Adjust the CCD unit adjustment value listed in the table below with the scribed line on the lens base.



	CCD adjustment value
+4 scales	5.0~
+3 scales	3.6~4.9
+2 scales	2.2~3.5
+1 scale	0.8~2.1
Reference	-0.6~0.7
-1 scale	-2.0~ -0.7
-2 scales	-3.4~ -2.1
-3 scales	-4.8~ -3.5
-4 scales	~ -4.9

<2> Make a sample copy at the above position, and measure the magnification ratio.

<3> Change the installing position in the horizontal direction to adjust the magnification ratio.

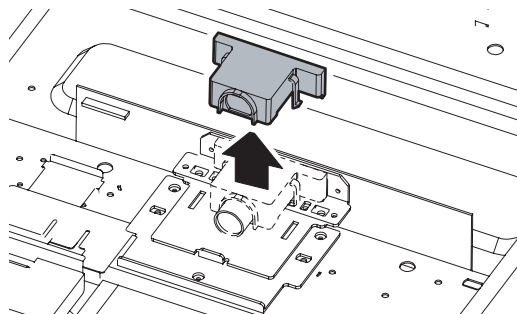
- When the copy image is longer than the original, shift to the positive (+) direction.
- When the copy image is shorter than the original, shift to the negative (-) direction.

* 1 scale of the scribed line corresponds to 0.3% of magnification ratio.

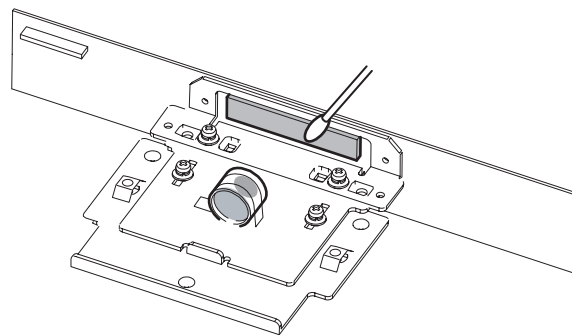
* If this adjustment is not satisfactory, make a fine adjustment with SIM 48-1.
(Refer to the adjustment described below.)

c-1. CCD lens

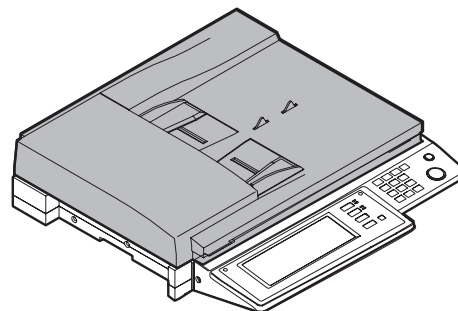
- 1) Remove the table glass.
- 2) Remove the dark-box cover.
- 3) Remove the lens cover.



- 4) Clean the CCD lens and the CCD.



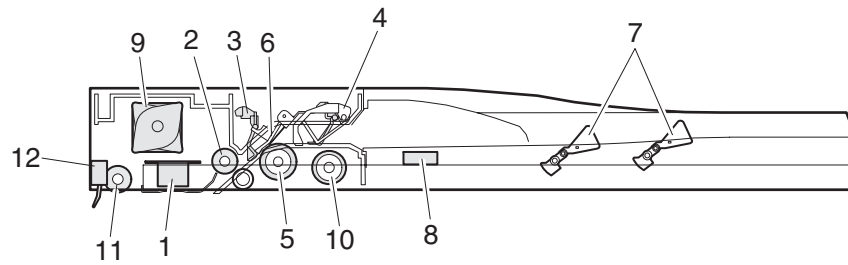
7. DSPF section



A. General

Sheet documents are automatically fed and transported for continuous scanning.

The DSPF (MX-EFX1) supports duplex sheet to scan both of the front and the back surfaces at a time.



Code	Signal name	Name	Function/Operation	Type	Note
SCOV	SCOV	SPF cover switch	SPF cover open/close detection	Transmission type	Sensor
SPFM	SPFM1	SPF paper feed motor, paper transport motor	Drives the paper feed roller and the transport roller. (SPF)	Stepping motor	
SPFC	SPFC	SPF paper feed clutch	SPF paper feed section roller ON/OFF control	Electromagnetic clutch	
SRRC	SRRC	SPF resist roller clutch	SPF resist roller ON/OFF control	Electromagnetic clutch	
SPED	SPED	SPF document set detector	SPF document presence detection	Transmission type	Sensor
SPPD	SPPD	SPF document paper pass detector	SPF document paper pass detection 1	Transmission type	Sensor
SPFS	SPFS	SPF document pickup solenoid	SPF document pickup	Solenoid	
STMP	STMP	FAX finish stamp solenoid	Drives the FAX document finish stamp.	Solenoid	
SPLS1	SPLS1	SPF document length detector 1	SPF document length detection (Short)	Transmission type	Sensor
SPLS2	SPLS2	SPF document length detector 2	SPF document length detection (Long)	Transmission type	Sensor
SPFVR	SPFVR	SPF document size (Width) detection analog data detector	SPF document size (Width) detection	Volume resistor	Other detector
SOCD	SOCD	SPF open/close detector	SPF unit open/close detection	Transmission type	Sensor
SPOD	SPOD	SPF paper exit detector	SPF paper exit detection	Transmission type	Sensor

No.	Name	Function
1	CIS unit	This is an image sensor unit to scan the back of a document. An image sensor (CIS: Contact Image Sensor) of 7,196 pixels is employed. The scan resolution is 600dpi. LED lights in the unit are reflected onto the document. Lights reflected from the document are passed through the lens to form images on the photoelectric conversion elements. The photo energy is converted into electric energy.
2	Document resist roller	This roller makes synchronization between the document lead edge and the scan start position.
3	Document resist front sensor (SPPD)	Detects that a document reaches the resist roller.
4	Document set sensor	Detects that a document is set on the tray.
5	Document feed roller	Feeds documents.
6	Separation plate	The rubber plate prevents against duplicated feed of documents.
7	Document length sensor (SPLS1/SPLS2)	Detects the document length to detect the document size.
8	Document width detection volume	Detects the document width to detect the document guide.
9	SPF motor	Transports a document in the SPF.
10	Document take-up roller	Picks up a document and transport it to the document feed roller.
11	Document exit roller	Discharges a document.
12	Document exit sensor (SPOD)	Detects document exit.

C. Operational descriptions

(1) Document feed, transport, scan, paper exit, and operating speed

The document fed by the take-up roller is sent through the paper feed roller and the transport roller to the resist roller section.

In the resist roller section, the document lead edge and the scan start position are synchronized. The document is transported to the scan section. After being scanned, the document discharged to the document exit tray by the paper exit roller.

The document transport speed varies depending on the scan mode and the scan magnification ratio as shown below.

Scan mode	Magnification ratio	Document transport speed
Single surface scan/ Duplex scan	100% or above	220mm/sec
Single surface scan/ Duplex scan	101% or above	110mm/sec
	High image quality FAX	110mm/sec 167.1mm/sec

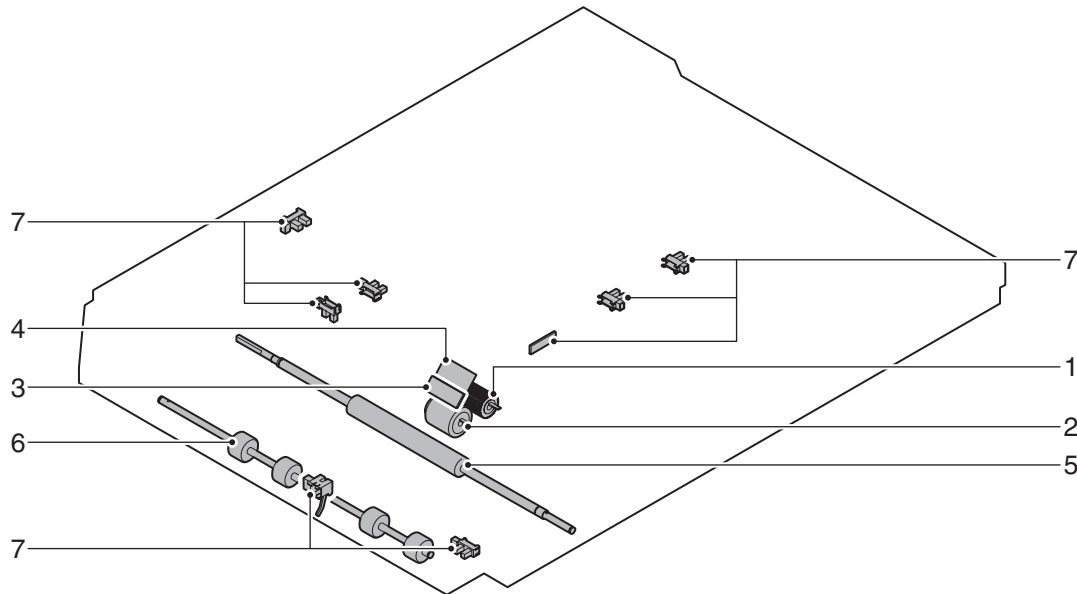
D. Maintenance and parts replacement

(1) Maintenance list

Unit name	No.	Part name	When calling	100K	200K	300K	400K	500K	600K	700K	800K	Remark
DSPF section	1	Pick-up roller	○	○	○	○	○	○	○	○	○	Note 2
	2	Paper feed roller	○	○	○	○	○	○	○	○	○	Note 2
	3	Separation mylar lower	○	○	○	○	○	○	○	○	○	Note 2
	4	Separation pad	○	○	○	○	○	○	○	○	○	Note 2
	5	PS roller	○	○	○	○	○	○	○	○	○	
	6	Paper exit roller	○	○	○	○	○	○	○	○	○	
	7	Sensors		○	○	○	○	○	○	○	○	Clean with air.

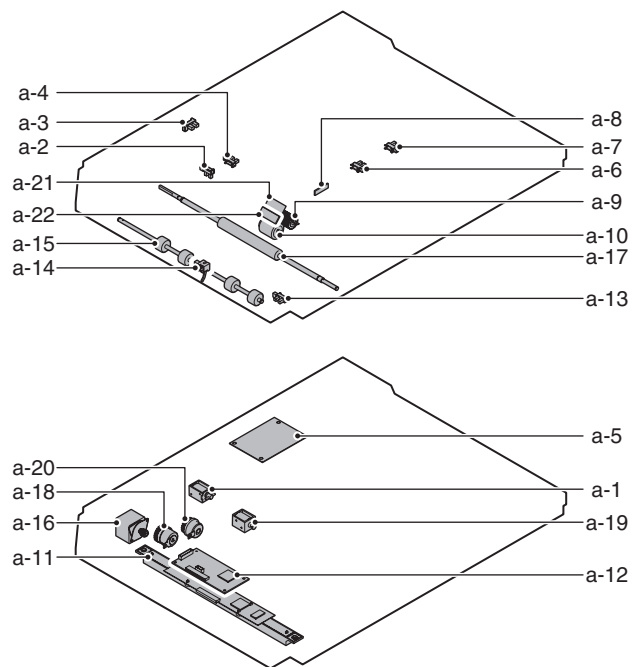
Note 2: Replacement reference: Replace by using the SPF counter value as an indication.

Paper feed section pickup roller, paper feed roller, separation pad, separation lower mylar lower:
100K or 1 year



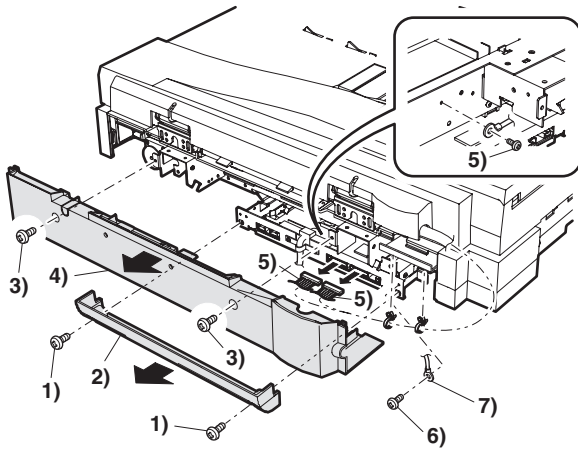
(2) Maintenance and parts replacement

No.	Unit	Parts	
a	SPF unit	1	SPF document stopper solenoid
		2	SPF document resist front sensor
		3	SPF paper feed cover sensor
		4	SPF document set sensor
		5	SPF control PWB
		6	SPF original length sensor 1
		7	SPF original length sensor 2
		8	SPF original width detection volume PWB
		9	Pick-up roller
		10	Paper feed roller
		11	CIS unit
		12	CIS control PWB
		13	SPF open sensor
		14	SPF original exit sensor
		15	Paper exit roller
		16	SPF motor
		17	Resist roller
		18	Resist roller clutch
		19	SPF original paper feed solenoid
		20	SPF original paper feed clutch
		21	Separation mylar lower
		22	Separation pad

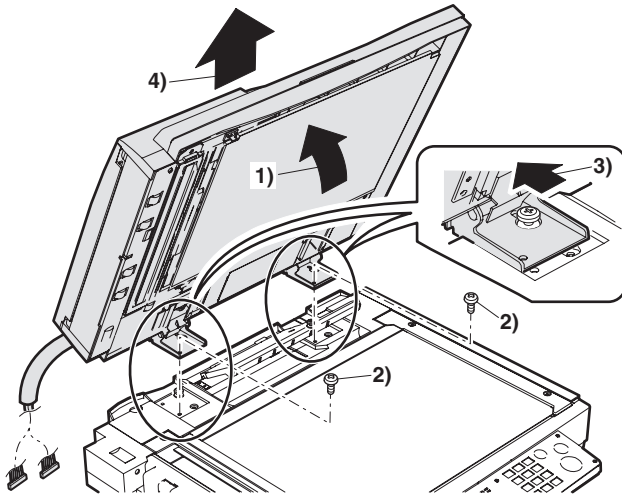


a. SPF unit

- 1) Remove the rear cabinet of the scanner section.
- 2) Disconnect the connector.
- 3) Disconnect the grounding wire.

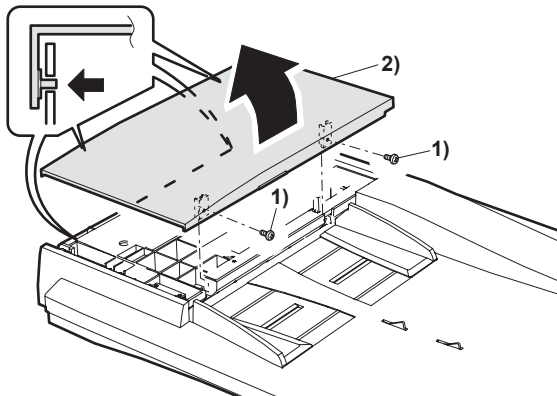


- 4) Slide the SPF unit to the bottom, then remove it.

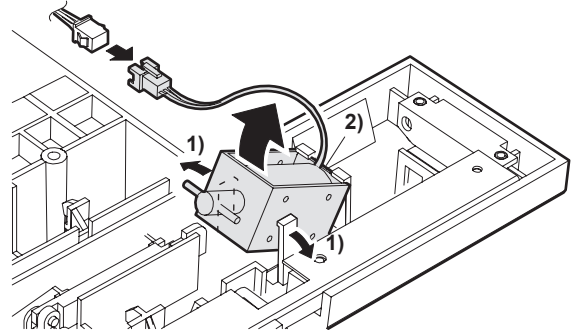


a-1. SPF document stopper solenoid

- 1) Remove the upper transport unit cover.



- 2) Remove the stopper solenoid.

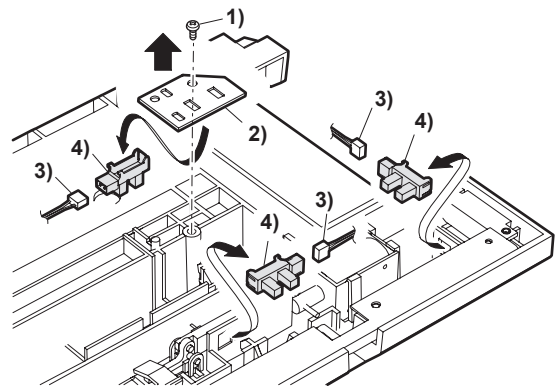


a-2. SPF document resist front sensor

a-3. SPF paper feed cover sensor

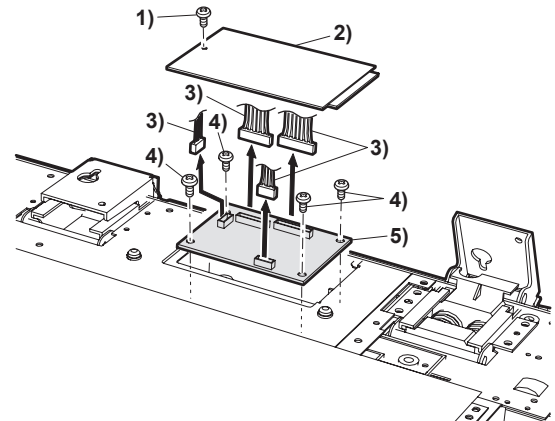
a-4. SPF document set sensor

- 1) Remove the upper transport unit cover.
- 2) Remove the sensors.



a-5. SPF control PWB

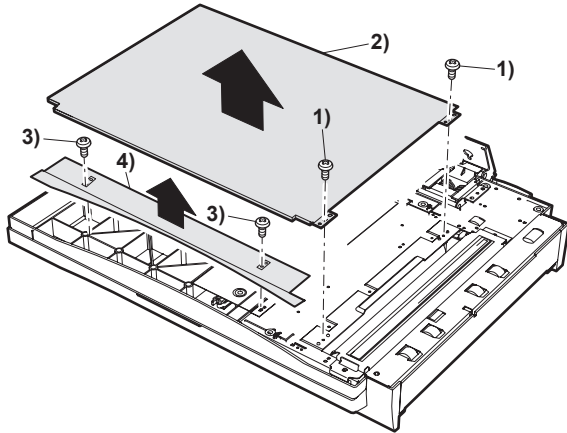
- 1) Remove the SPF PWB, and remove the SPF control PWB.



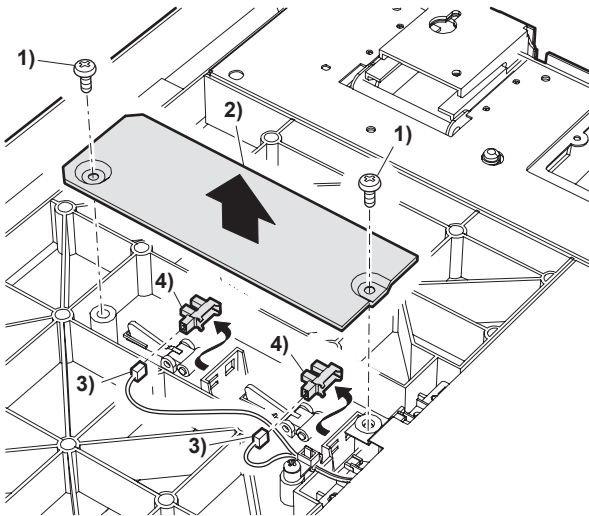
a-6. SPF original length sensor 1

a-7. SPF original length sensor 2

- 1) Remove the OC cover.

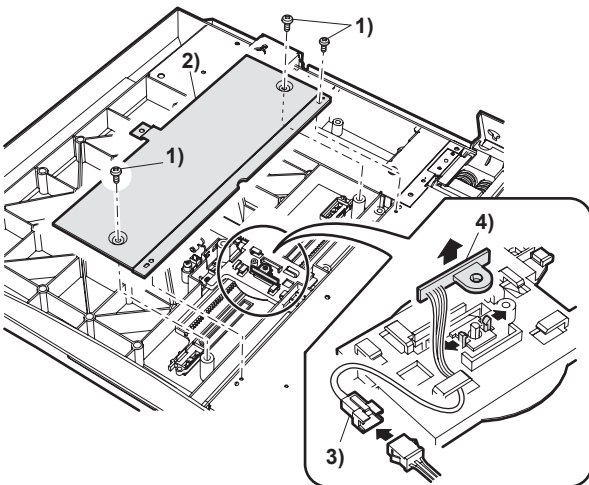


- 2) Remove the original length sensor cover, and remove the sensor.



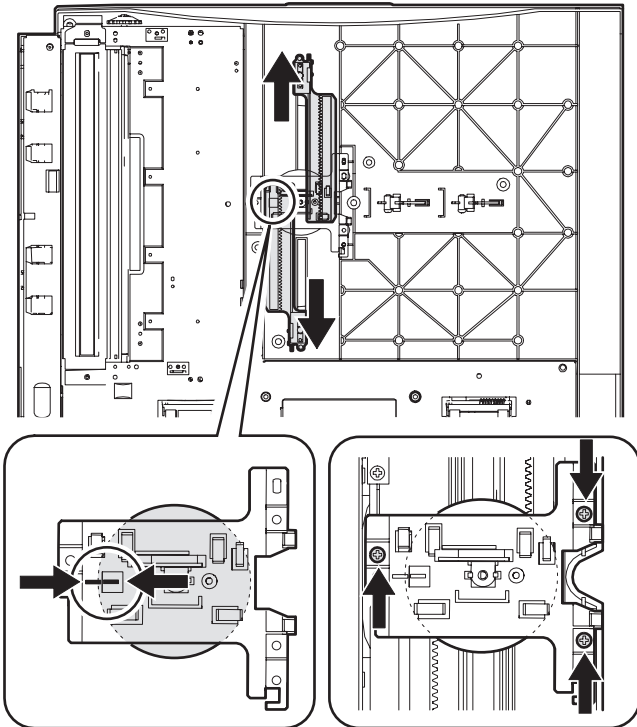
a-8. SPF original width detection volume PWB

- 1) Remove the OC cover.
- 2) Remove the original length sensor cover.
- 3) Remove the volume cover and remove the volume.



(SPF original width detection volume installation)

- <1> Extend the original guide to the maximum position.
- <2> Adjust so that the mark on the width detection pinion gear is fitted with the mark on the volume mounting plate.



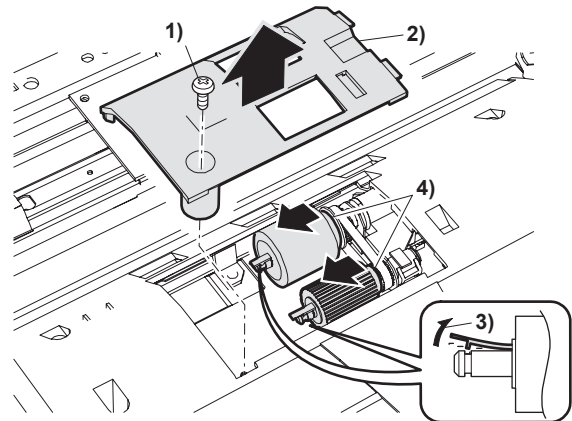
- <3> Fix the mounting plate with the screw.

* When the rotational volume sensor is replaced, the sensor value must be adjusted to the paper size (mark on the tray). (Refer to the SIM 53-6 or 53-7.)

a-9. Pick-up roller

a-10. Paper feed roller

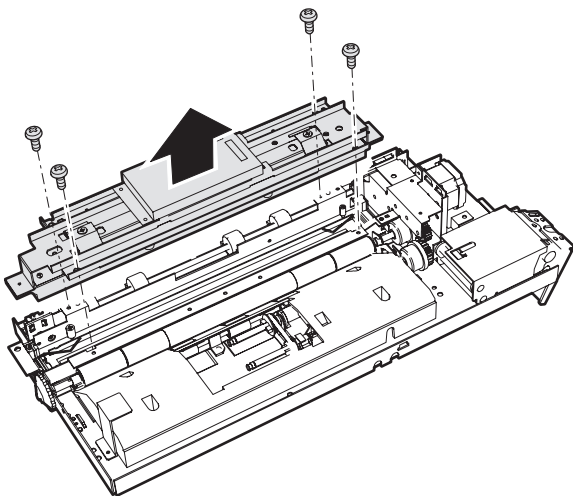
- 1) Remove the upper transport unit cover.
- 2) Remove the paper feed roller cover.
- 3) Remove the hook of each roller, and remove each roller.



a-11. CIS unit

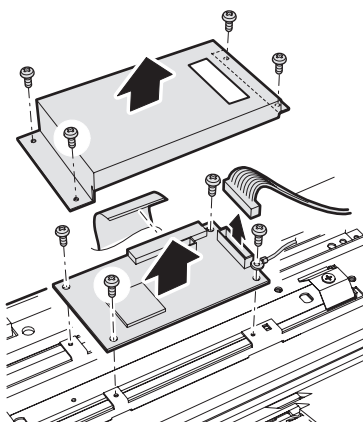
a-12. CIS control PWB

- 1) Remove the upper transport unit cover.
- 2) Remove the CIS unit.



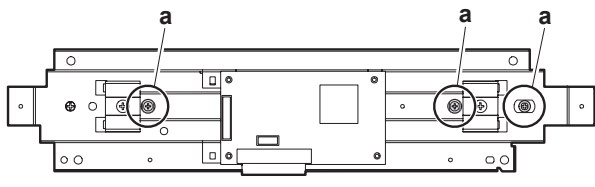
* When the CIS unit is replaced, the CIS shading adjustment must be performed. (Refer to the descriptions of ADJUSTMENTS.)

- 3) Remove the harness, the cover, the earth wire, and remove the CIS control PWB.



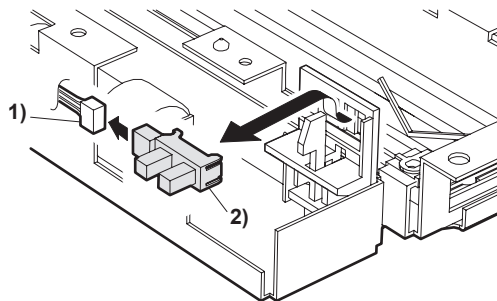
For easy installation of the cover, slide the earth line to the connector side when attaching.

Note: Never touch the screws marked (a). These screws are for factory use only. The CIS is adjusted in the factory with special tools.



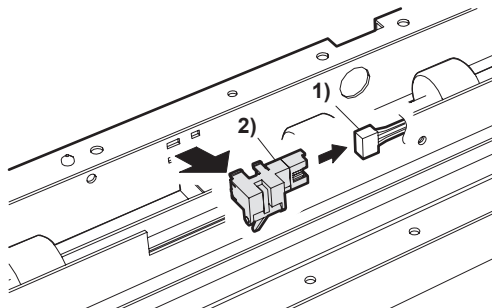
a-13. SPF open sensor

- 1) Remove the open sensor.



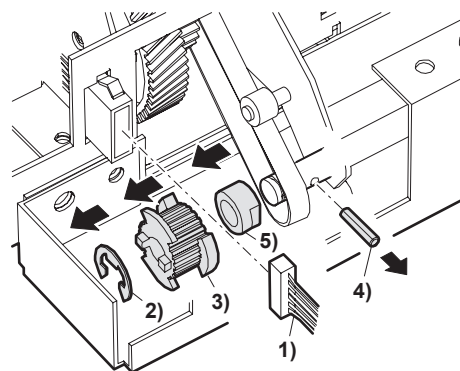
a-14. SPF original exit sensor

- 1) Remove the paper exit sensor.

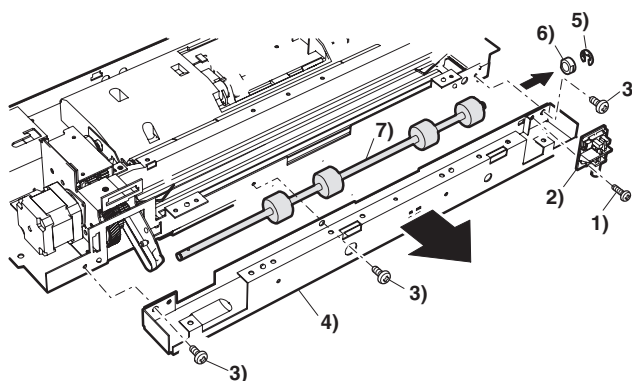


a-15. Paper exit roller

- 1) Remove the original paper feed unit.
- 2) Remove the paper exit roller gear.

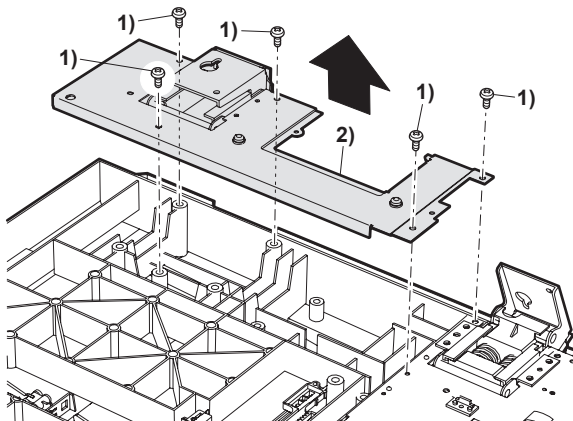


- 3) Remove the paper exit frame, and remove the paper exit roller.

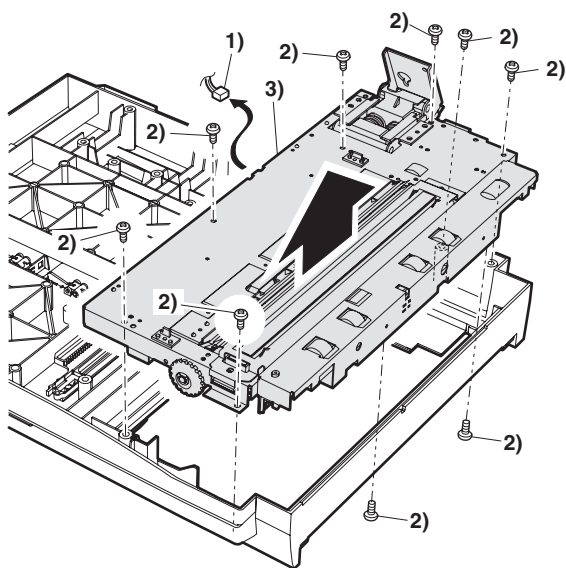


a-16. SPF motor

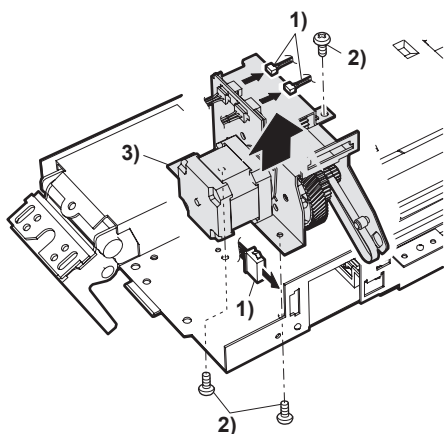
- 1) Remove the OC cover.
- 2) Remove the SPF lower cover.



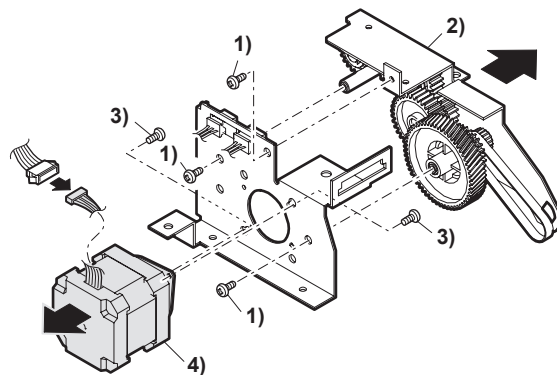
- 3) Remove the original paper feed unit.



- 4) Remove the SPF drive unit.



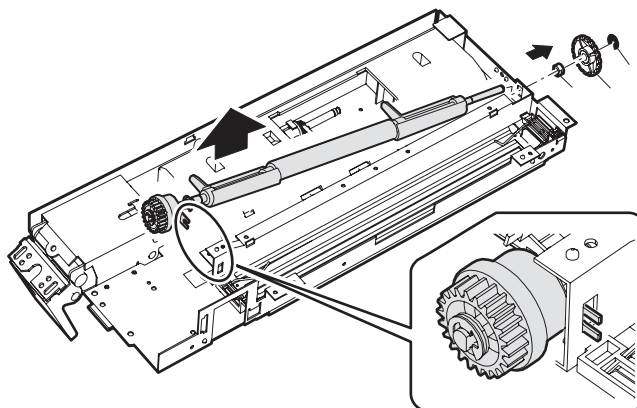
- 5) Remove the SPF motor.



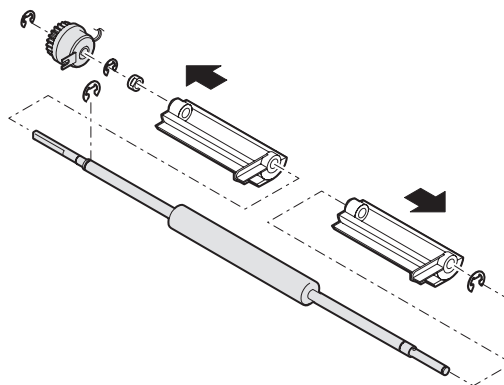
a-17. Resist roller

a-18. Resist roller clutch

- 1) Remove the SPF resist roller unit.



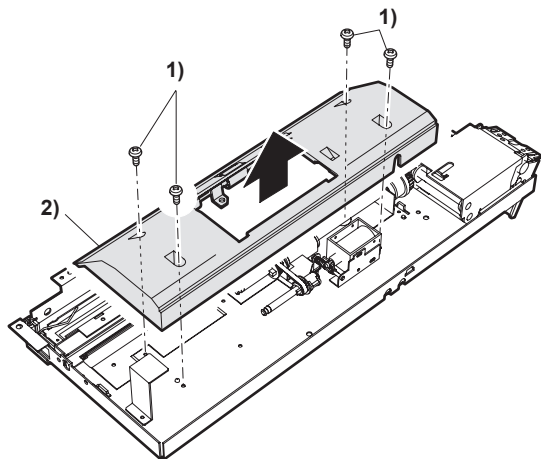
- 2) Remove the SPF resist roller and the SPF resist roller clutch.



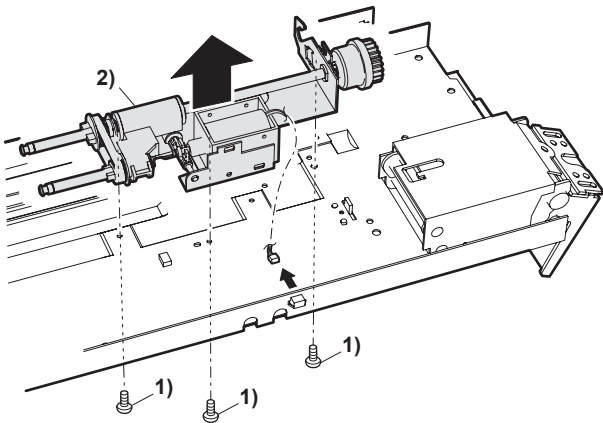
a-19. SPF original paper feed solenoid

a-20. SPF original paper feed clutch

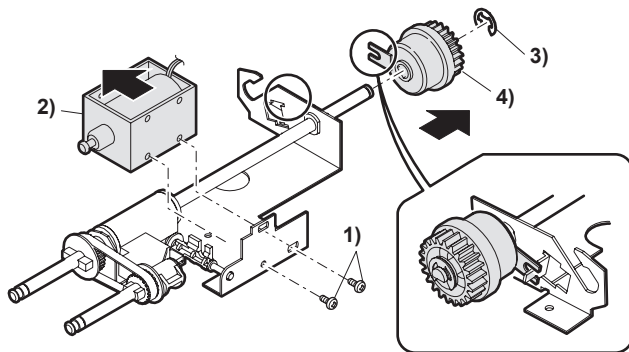
- 1) Remove the SPF paper feed unit.
- 2) Remove the SPF paper guide.



- 3) Remove the SPF pickup unit.



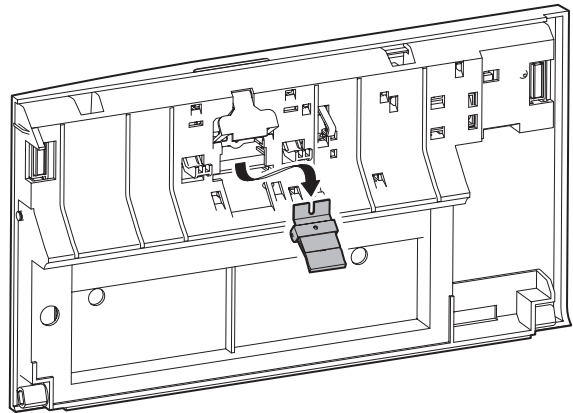
- 4) Remove the original paper feed solenoid and the SPF original paper feed clutch.



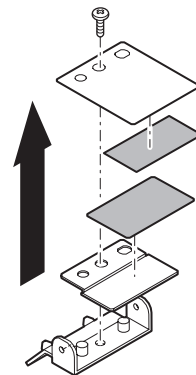
a-21. Separation mylar lower

a-22. Separation pad

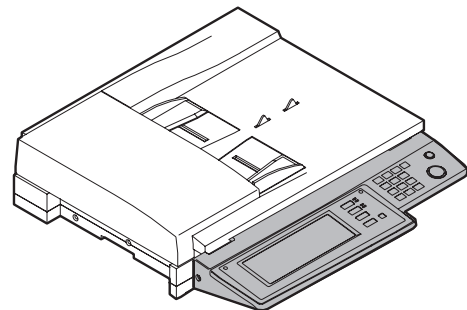
- 1) Remove the upper transport unit.
- 2) Loosen the screw, and remove the separation pad unit.



- 3) Remove the screw, and remove the separation plate and the front separation plate.
- 4) Remove the separation Mylar lower, and the separation pad.



8. Operation panel section



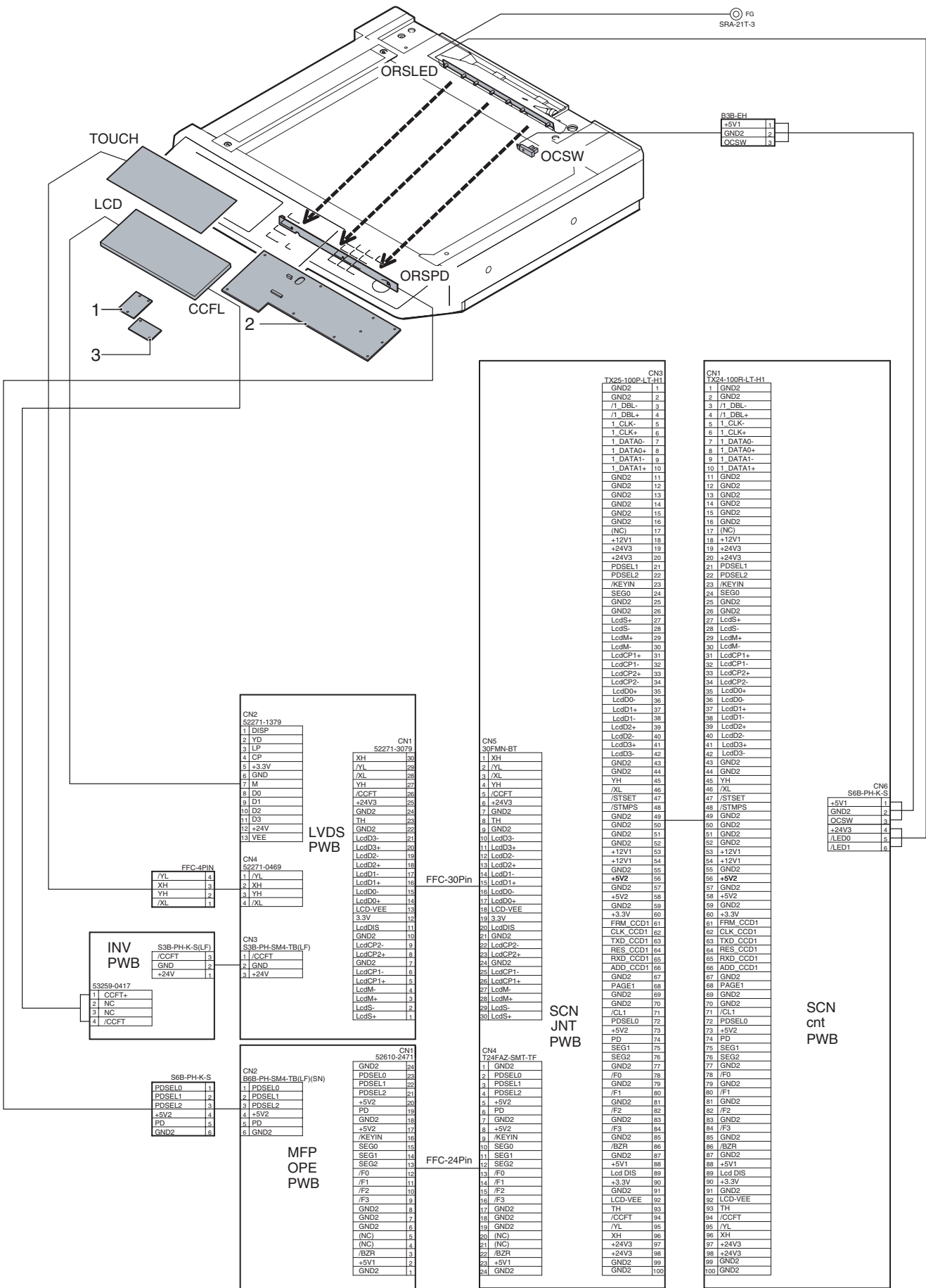
A. General

This section describes various types of settings, display and operation.

The LCD display section is controlled by the MFP CONTROL PWB.

The touch panel, operation keys and LED display are controlled by the SCANNER CONTROL PWB.

B. Major parts and signal functions

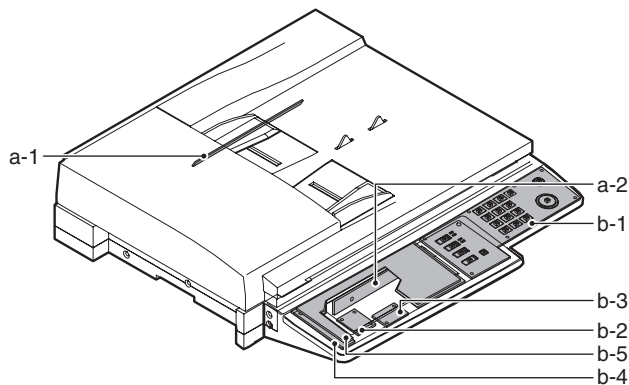


Code	Signal name	Name	Function/Operation	Type	Note
LCD		LCD unit	Display the each menu and the information.		
TOUCH		Touch panel	Various adjustments and setting operation are performed.		
ORSLED		Document size detection light emitting PWB	Generates the document size detection signal.		
ORSPD		Document size detection light receiving PWB	Generates the document size detection signal.		
OCSW	OCSW	SPF open/close detector	Document size detection trigger	Transmission type	Sensor
CCFL	CCFL	LCD backlight	LCD backlight	CCFL cool CRT	

No.	Name	Function
1	LVDS/INV PWB	Generates the LCD display signal and a high voltage for the backlight.
2	Operation control PWB	Controls the display operation panel.

C. Maintenance and parts replacement

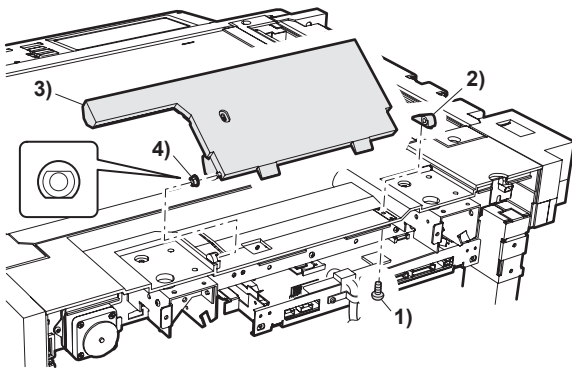
No.	Unit	Parts
a	Original detection unit	1 Original size detection PWB (Light emitting side)
		2 Original size detection PWB (Light receiving side)
b	Operation panel unit	1 MFP operation PWB
		2 LVDS PWB
		3 LCD INV-J PWB
		4 LCD unit
		5 Touch panel



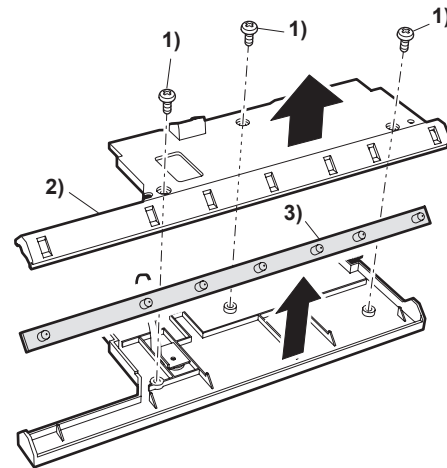
a. Original detection unit

a-1. Original size detection PWB (Light emitting side)

- 1) Remove the rear cabinet.
- 2) Remove the original detection unit (Light emitting side).

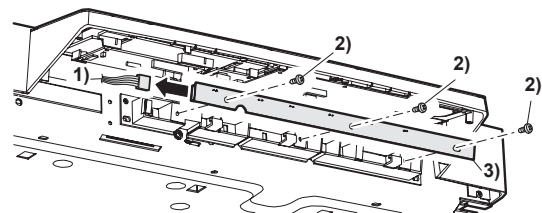


- 3) Remove the document size detection PWB (Light emitting side)



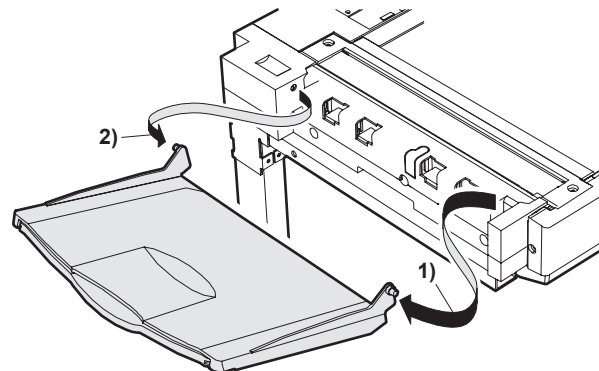
a-2. Original size detection PWB (Light receiving side)

- 1) Remove the operation panel lower cabinet.
- 2) Remove the original size detection PWB (Light receiving side)

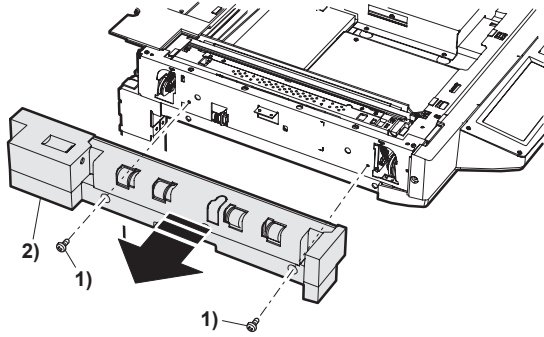


b. Operation panel unit

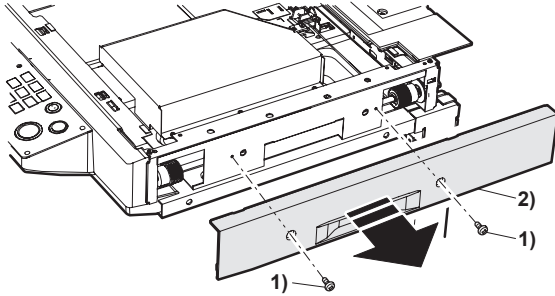
- 1) Remove the original exit tray.



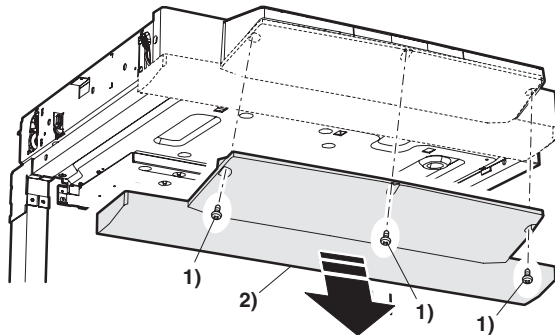
- 2) Remove the scanner left cabinet.



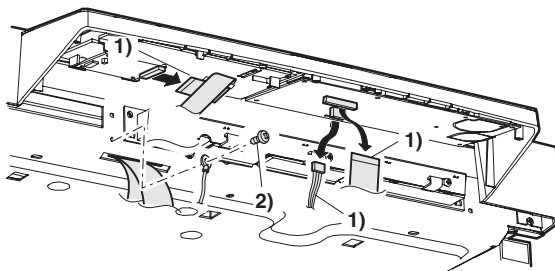
- 3) Remove the scanner right cabinet.



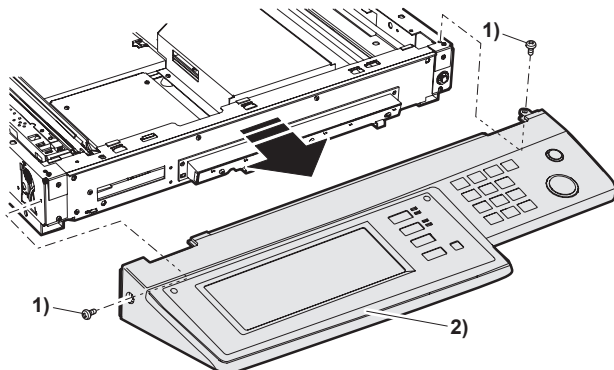
- 4) Remove the operation panel lower cabinet.



- 5) Remove the harnesses.

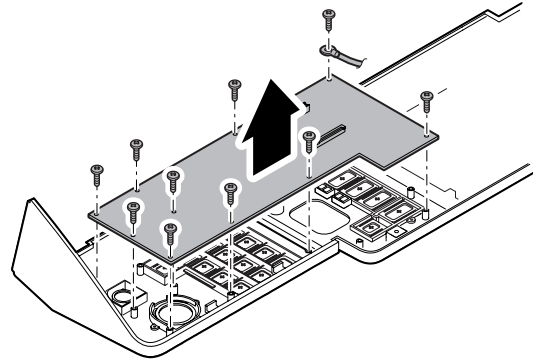


- 6) Remove the operation panel unit.



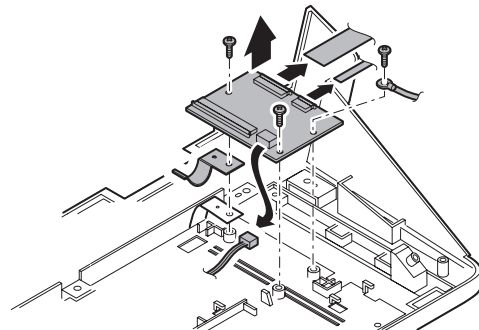
b-1. MFP operation PWB

- 1) Remove the earth terminal.
- 2) Remove the MFP operation PWB



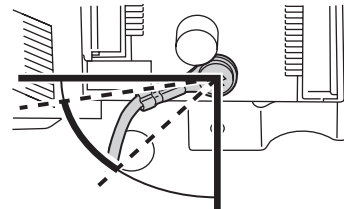
b-1. LVDS PWB

- 1) Disconnect each cables.
- 2) Remove the LVDS PWB.



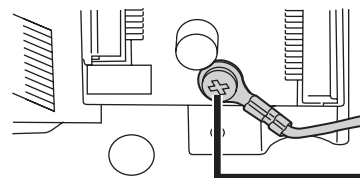
Note for installation

- * Tighten the ground screw and ground connector as shown in the below illustration. Improper placement will cause problems.



OK

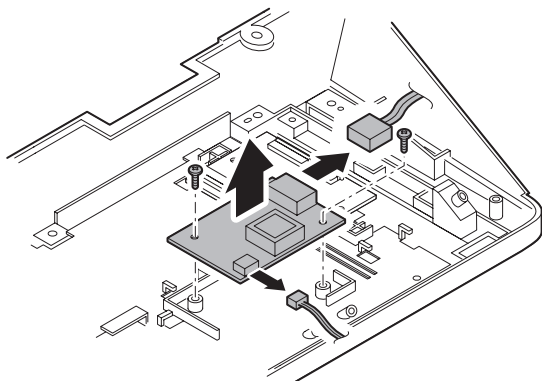
- * Do not set the ground cable in this position.



NG

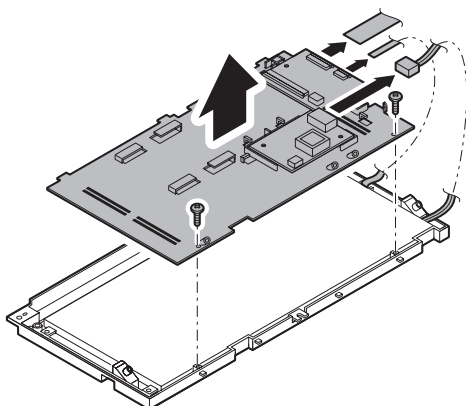
b-3. LCD INV-J PWB

- 1) Disconnect each cables.
- 2) Remove the LCD INV-J PWB.

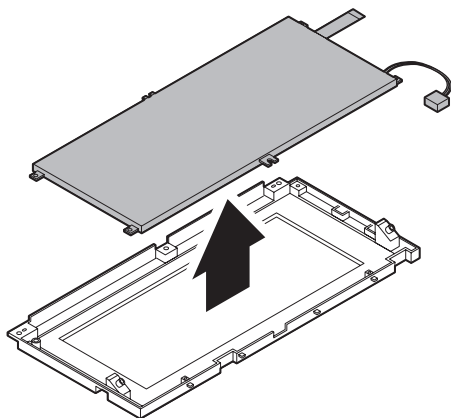


b-4. LCD unit

- 1) Disconnect each cables.
- 2) Remove the LCD cover.

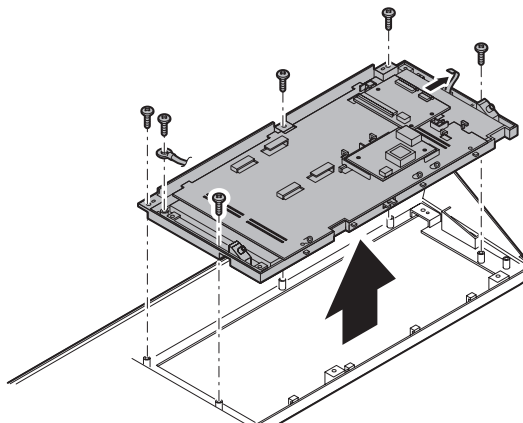


- 3) Remove the LCD unit.

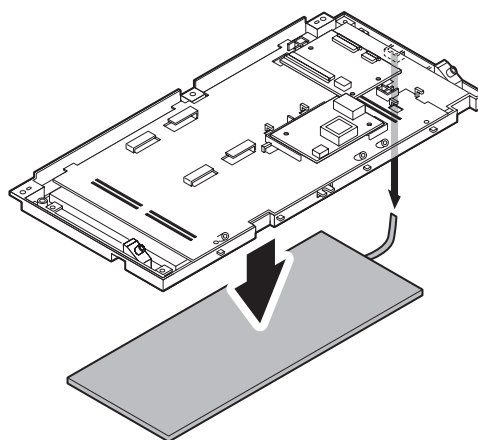


b-5. Touch panel

- 1) Disconnect the flat cable.
- 2) Remove the earth wire.
- 3) Remove the LCD unit.



- 5) Remove the touch panel.

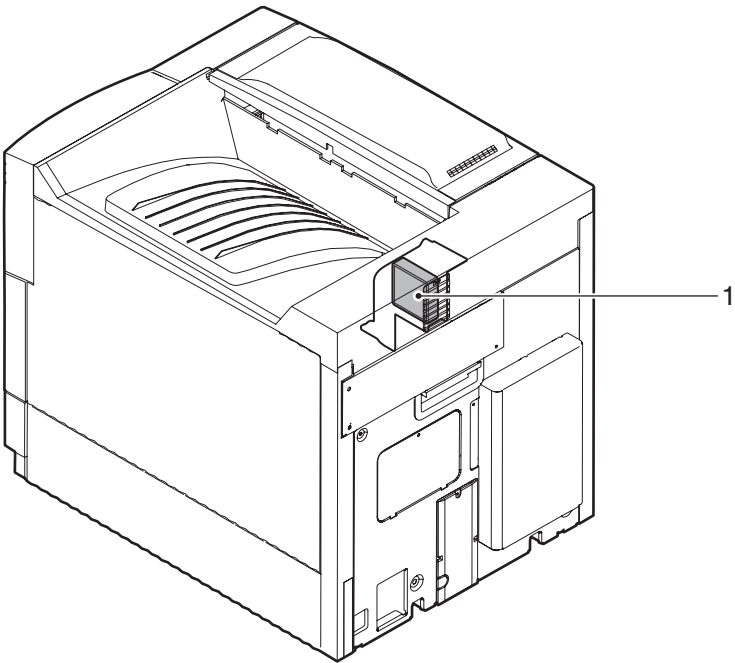


9. Filter

A. Maintenance and parts replacement

(1) Maintenance list

Unit name	No.	Part name	When calling	100K	200K	300K	400K	500K	600K	700K	800K	Remark
Filters	1	Ozone filter		▲	▲	▲	▲	▲	▲	▲	▲	P/G No.: [12]-2

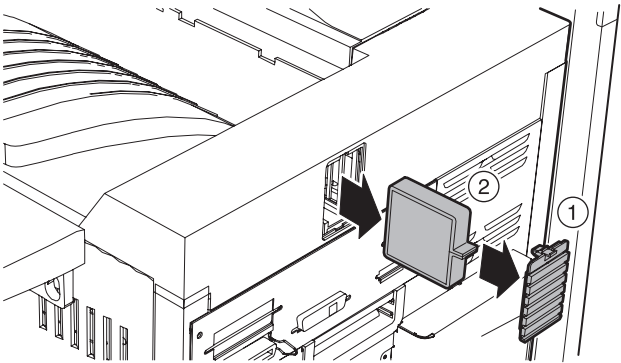


(2) Maintenance and parts replacement

No.	Unit	Parts	
a		1	Ozone filter ▲

a-1. Ozone filter

- 1) Remove the paper exit tray cabinet cover, and remove the ozone filter.

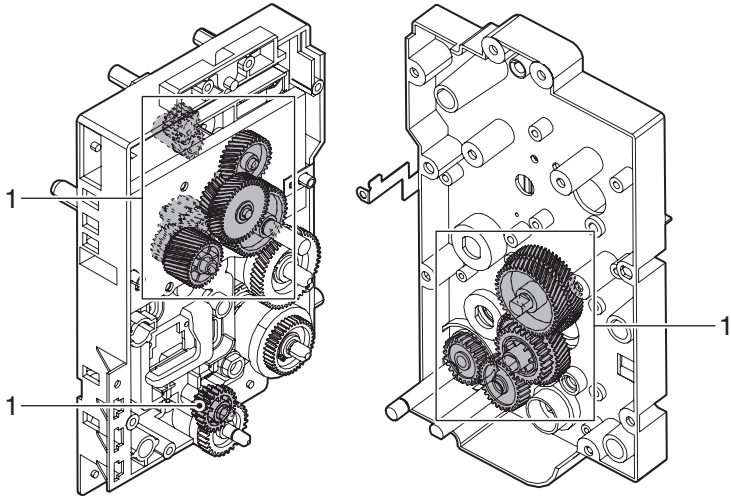


10. Drive section

A. Maintenance and parts replacement

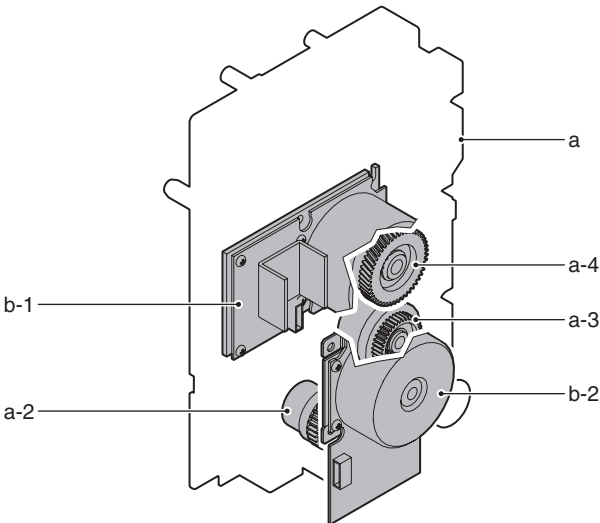
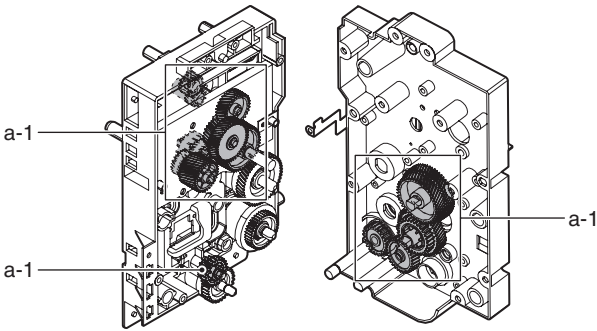
(1) Maintenance list

Unit name	No.	Part name	When calling	100K	200K	300K	400K	500K	600K	700K	800K	Remark
Drive section	1	Gears (Specified position)	×	☆	☆	☆	☆	☆	☆	☆	☆	



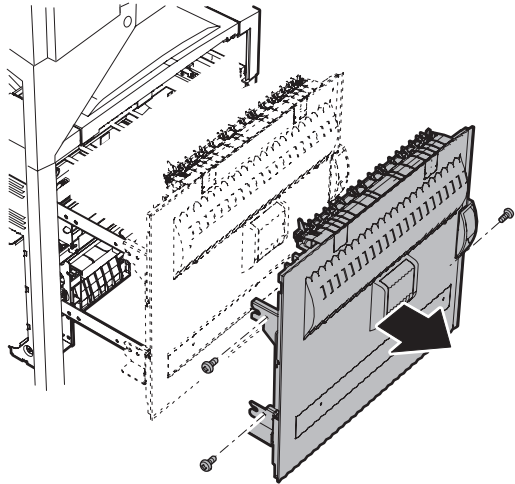
(2) Maintenance and parts replacement

No.	Unit	Parts	
a	Drive unit	1 Gears	×
		2 Paper cassette paper feed clutch	☆
		3 Paper transport clutch	
		4 Resist roller clutch	
b		1 Drum motor	
		2 Main motor	

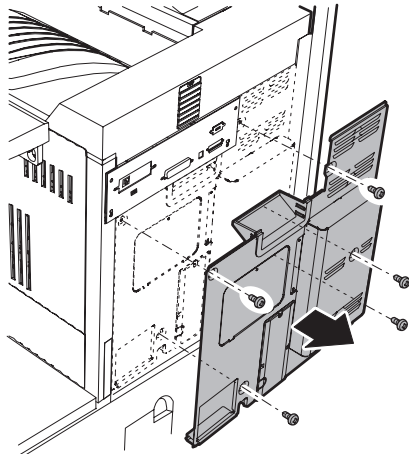


a. Drive unit

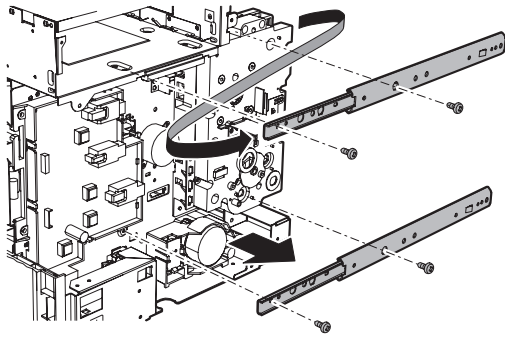
1) Remove the screw, and remove the left door.



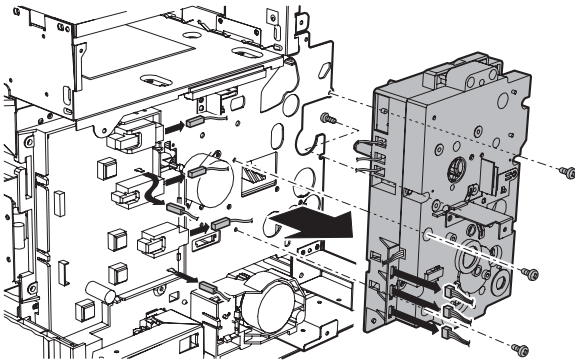
2) Remove the screw, and remove the rear cabinet.



- 3) Remove the screw, and remove the slide rail.

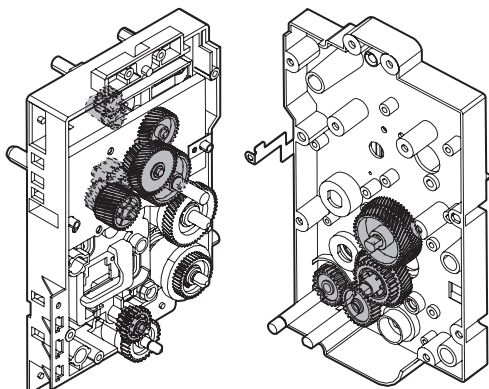
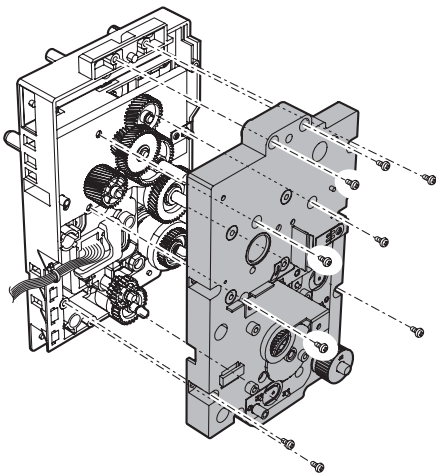


- 4) Remove the connector and the screw, and remove the main drive unit.

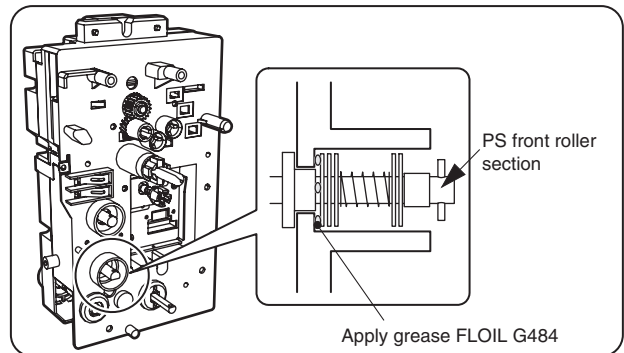


a-1. Gears

- 1) Remove the main drive unit.
- 2) Remove the screw, and remove the drive cover.



- * Remove the resist roller unit, and apply grease to the bottom section of the PS front roller section brake.

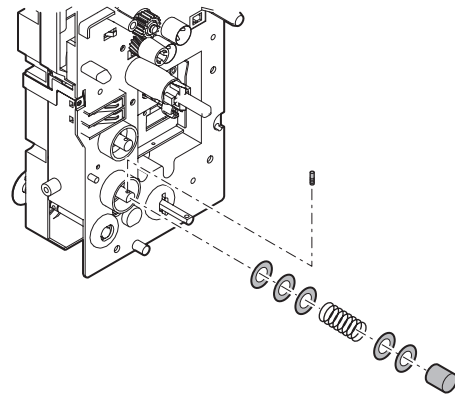


a-2. Paper cassette paper feed clutch

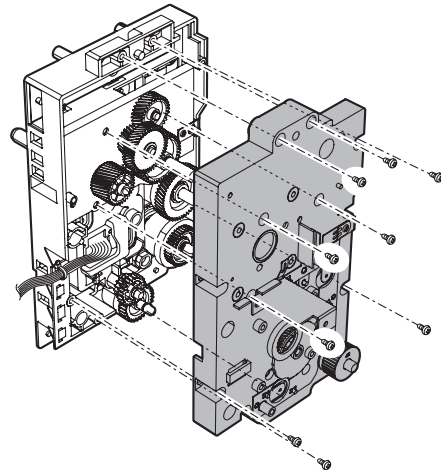
a-3. Paper transport clutch

a-4. Resist roller clutch

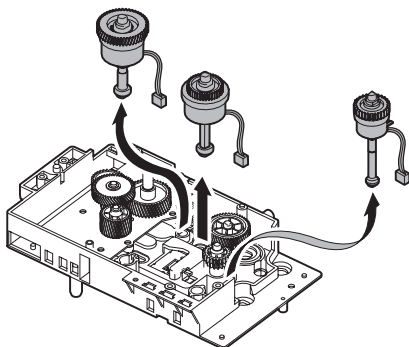
- 1) Remove the main drive unit.
- 2) Remove the parts.



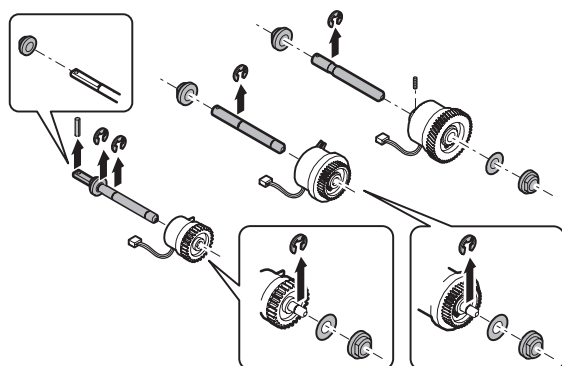
- 3) Remove the screw, and remove the drive cover.



- 4) Remove the connector, the paper cassette paper feed clutch unit, the paper transport clutch unit, and the resist roller clutch unit.



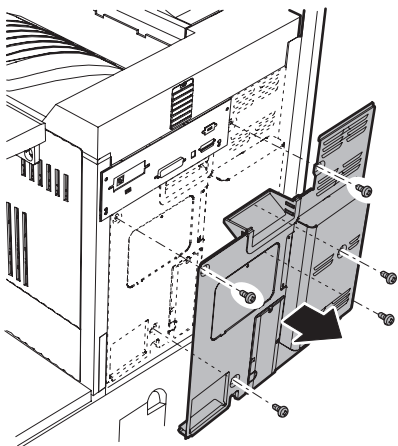
- 5) Remove the parts.



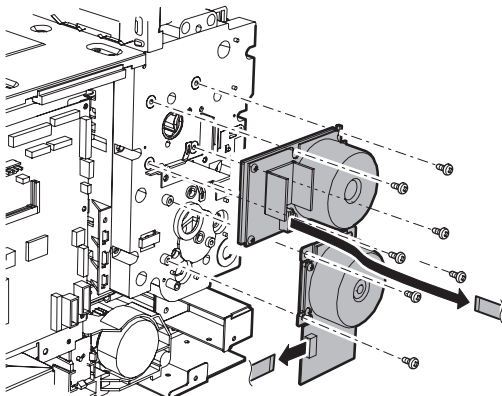
b-1. Drum motor

b-2. Main motor

- 1) Remove the screw, and remove the rear cabinet.



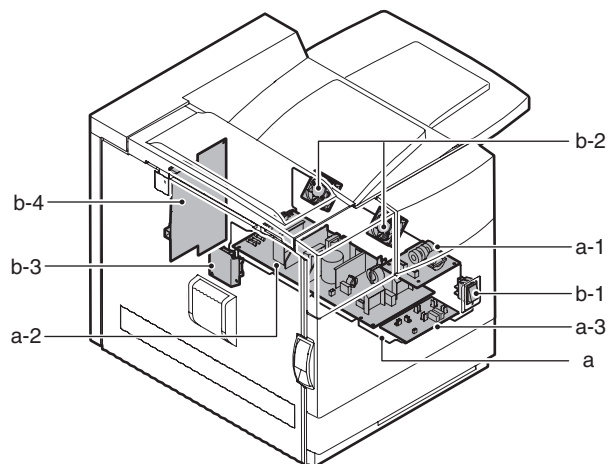
- 2) Remove the connector and the screw, and remove the drum motor and the main motor.



11. Power section

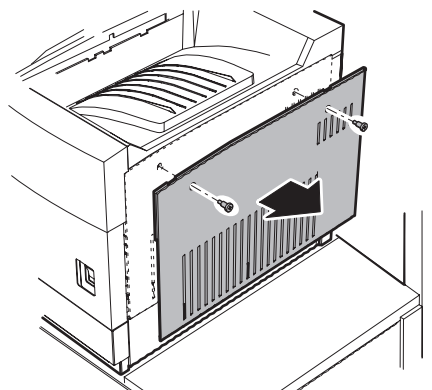
A. Maintenance and parts replacement

No.	Unit		Parts
a	Power unit	1	Reactor PWB (200V only) Filter PWB (Taiwan only)
		2	PowerPWB
		3	RelayPWB
b		1	Main switch
		2	Cooling fan motor
		3	Fuse PWB
		4	High voltage PWB

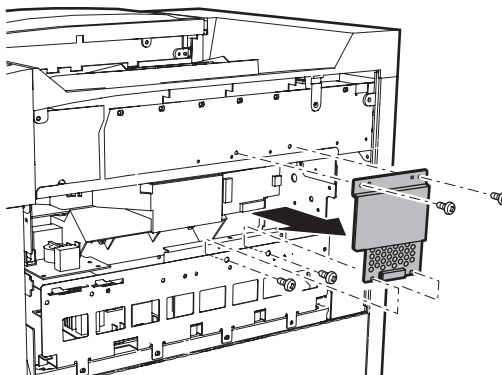


a. Power unit

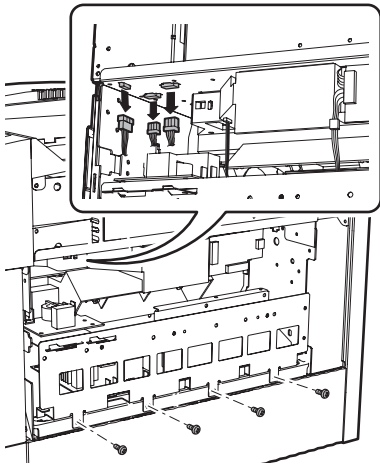
- 1) Remove the main switch mounting plate.
- 2) Remove the screw, and remove the right cabinet.



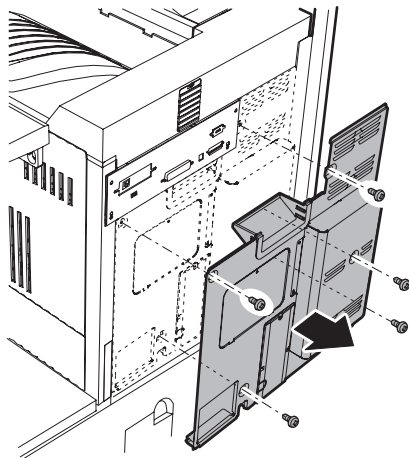
- 3) Remove the screw, and remove the right noise cover.



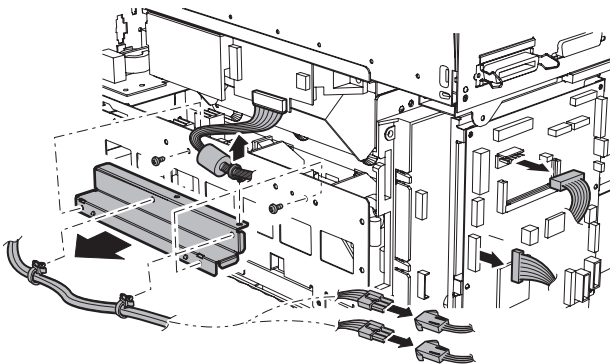
- 4) Remove the connector, and remove the screw.



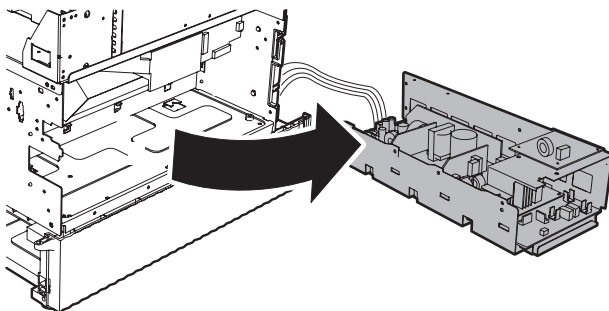
- 5) Remove the screw, and remove the rear cabinet.



- 6) Remove the connector, the screw, and the angle. Remove the snap band.



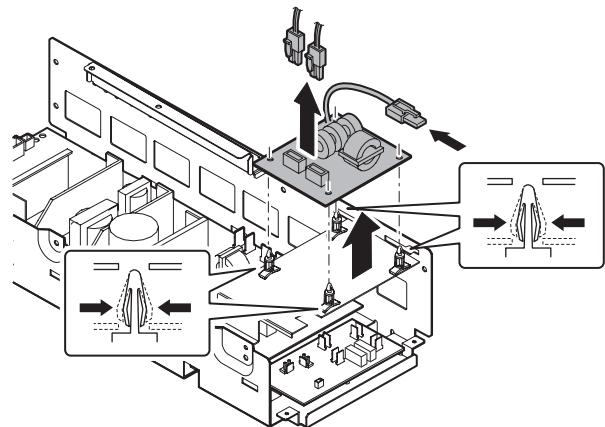
- 7) Remove the power unit.



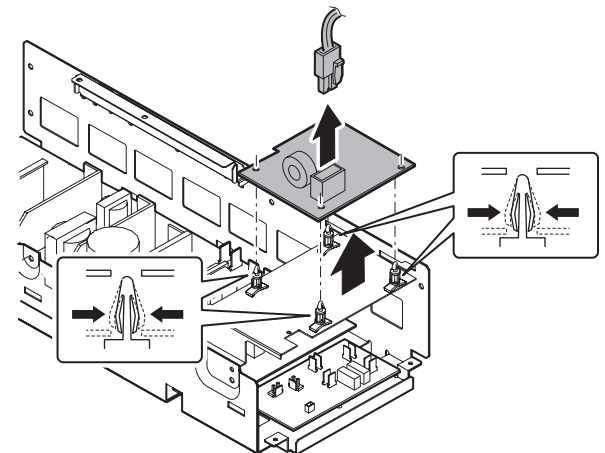
a-1. Reactor PWB (200V only) / Filter PWB (Taiwan only)

- 1) Remove the power unit.
- 2) Remove the connector and the PWB supporter, and remove the filter PWB.

(200V only)

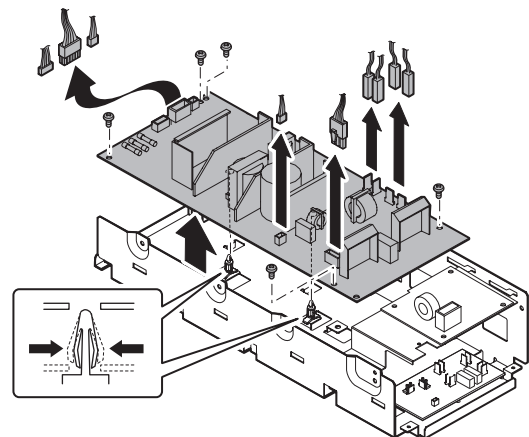


(Taiwan only)



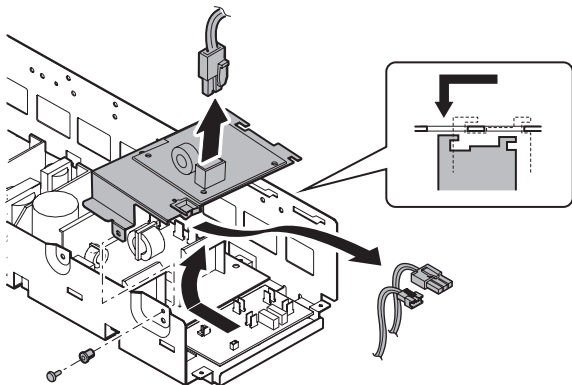
a-2. Power PWB

- 1) Remove the power unit.
- 2) Remove the connector, the screw, and the PWB supporter, and remove the power PWB.

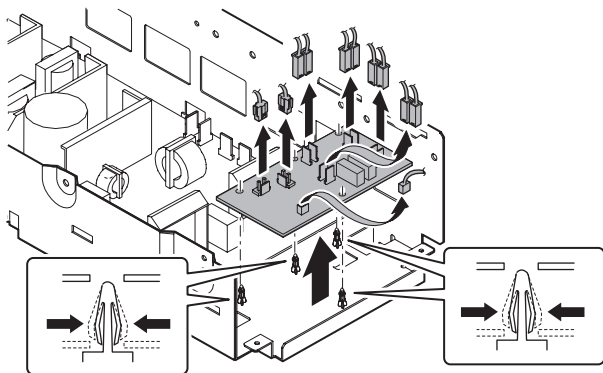


a-3. Relay PWB

- 1) Remove the power unit.
- 2) Remove the connector and the bushing, and remove the filter PWB mounting plate.

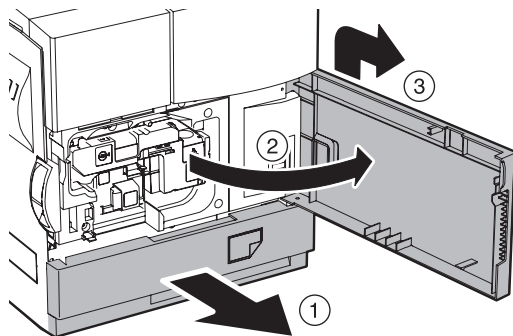


- 3) Remove the connector and the PWB supporter, and remove the relay PWB.

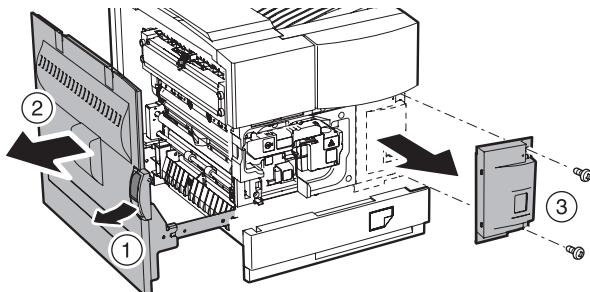


b-1. Main switch

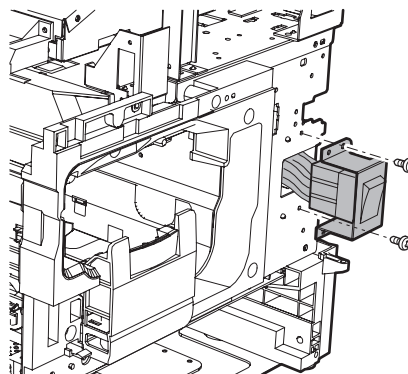
- 1) Pull out the No. 1 paper feed tray unit, and push up and remove the front door.



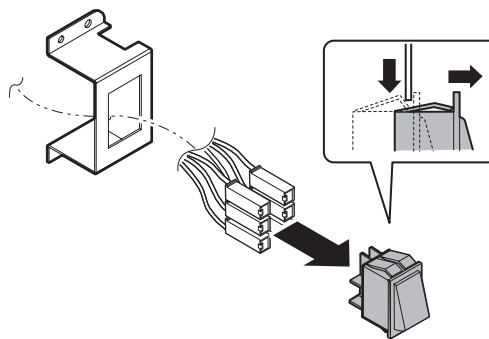
- 2) Release the lock, and pull out the left door. Remove the screw, and remove the front cover right.



- 3) Remove the screw, and remove the main switch mounting plate.

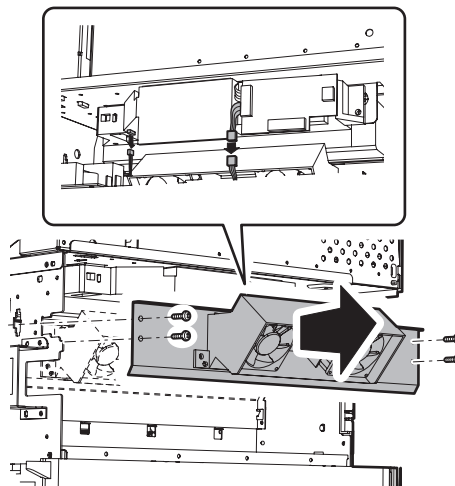


- 4) Remove the connector, and remove the main switch.

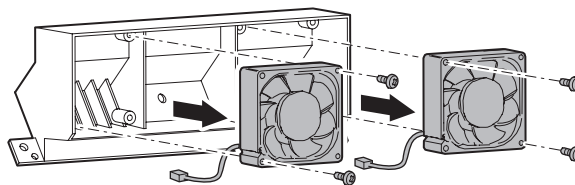


b-2. Cooling fan motor

- 1) Remove the power unit.
- 2) Remove the connector and the screw, and remove the duct holding cover.



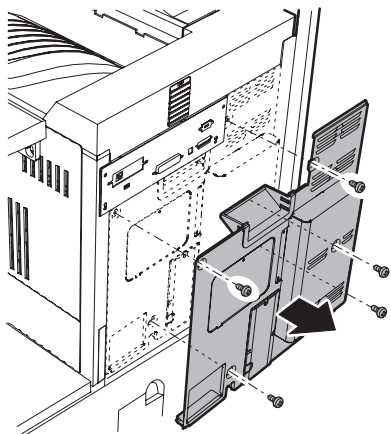
- 3) Remove the screw, and remove the cooling fan motor.



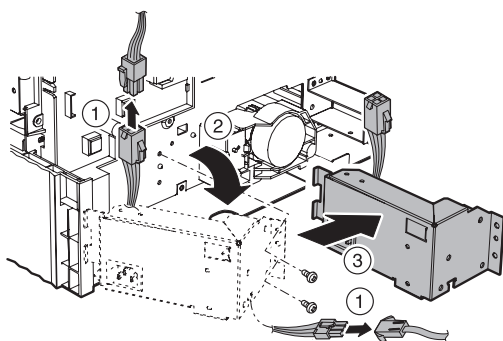
* When installing the fan, check the indication arrow and note the fan direction.

b-3. Fuse PWB

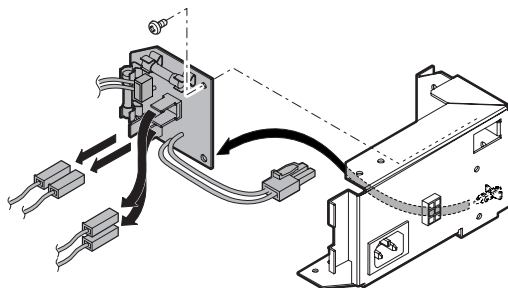
- 1) Remove the screw, and remove the rear cabinet.



- 2) Remove the connector and the screw, and remove the inlet mounting plate.

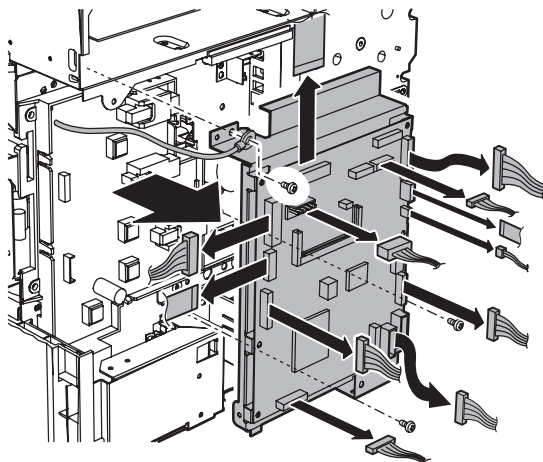


- 3) Remove the connector and the screw, and remove the fuse PWB.

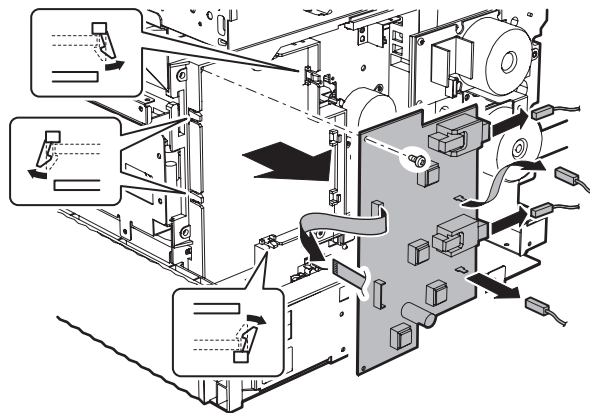


b-4. High voltage PWB

- 1) Remove the rear cabinet.
- 2) Remove the connector and the screw, and remove the PCU PWB unit.



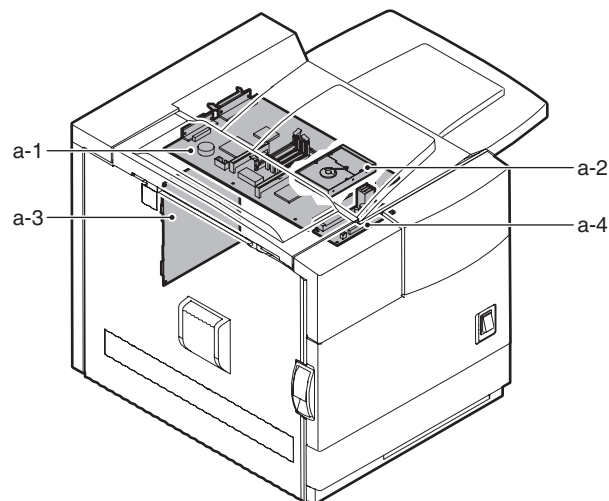
- 3) Remove the connector and the screw, and remove the high voltage PWB.



12. PWB

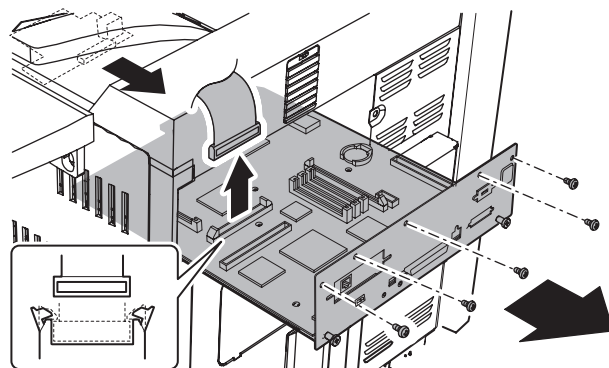
A. Maintenance and parts replacement

No.	Unit	Parts
a		1 MFP controller PWB
		2 HDD (Option)
		3 PCU PWB
		4 Mother PWB

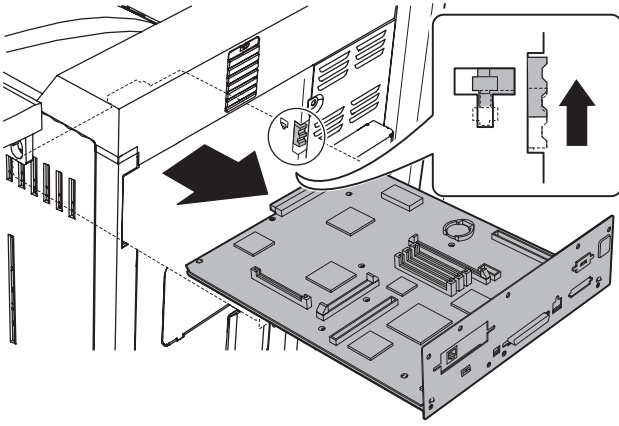


a-1. MFP controller PWB

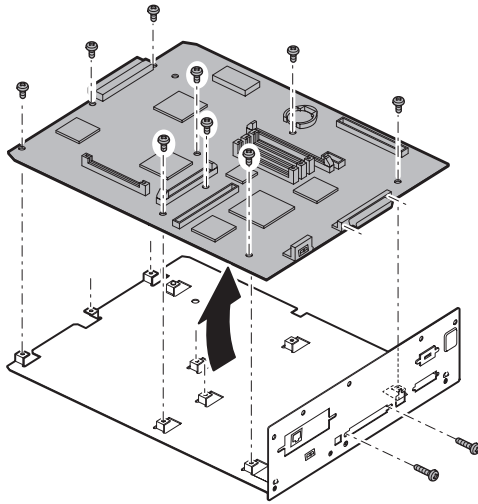
- 1) Remove the screw, and pull out the MFP controller PWB unit.
- 2) Remove the connector.



- 3) Release the lock, and remove the MFP controller PWB unit.

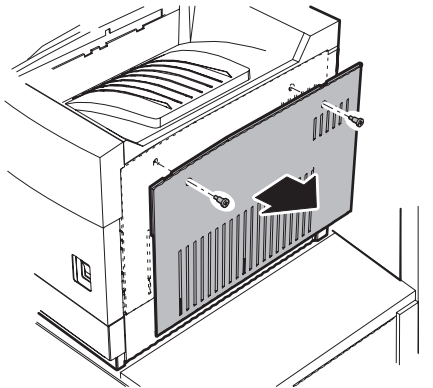


- 4) Remove the screw, and remove the MFP controller PWB.

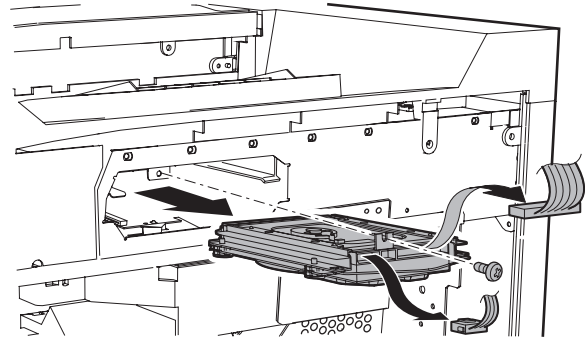


a-2. HDD (Option)

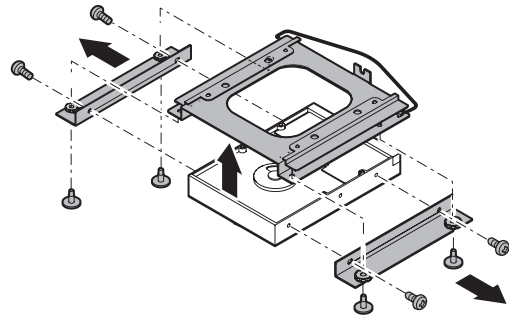
- 1) Remove the screw, and remove the right cabinet.



- 2) Remove the connector, and remove the screw.
- 3) Pull out the HDD unit.

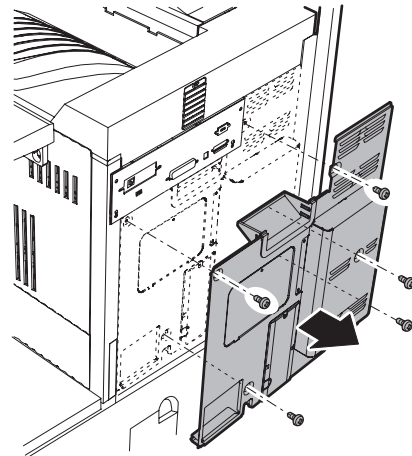


- 4) Remove the screw, and remove the HDD cover.
- 5) Remove the screw, and remove the HDD angle.



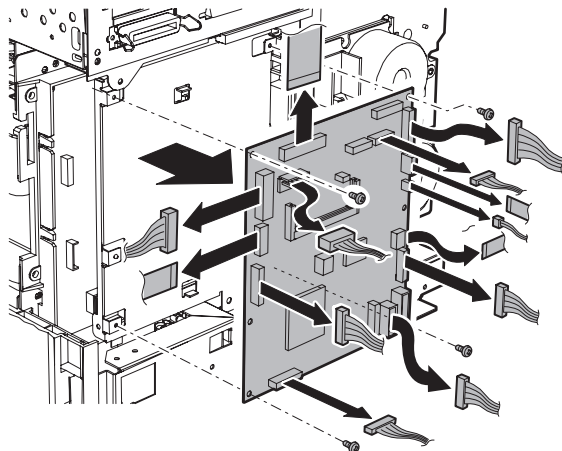
a-3. PCU PWB

- 1) Remove the screw, and remove the rear cabinet.



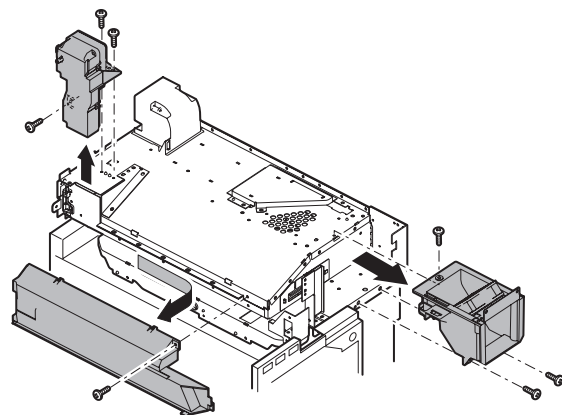
- 2) Remove the connector and the screw, and remove the PCU PWB.

* When replacing the PCU PWB, replace the EEPROM on the PCU PWB which is to be replaced.

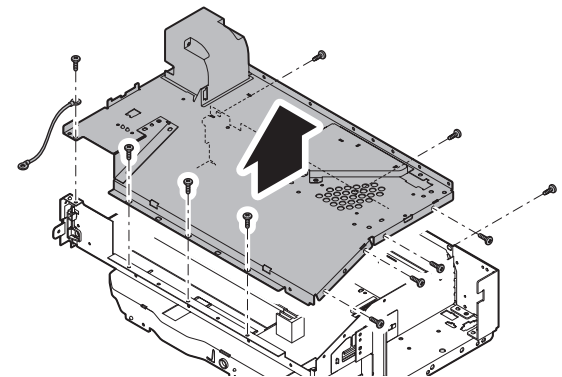


a-4. Mother PWB

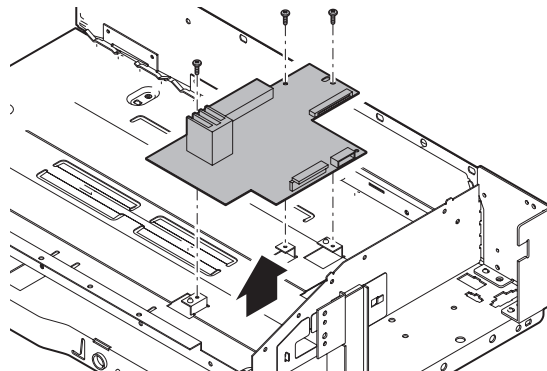
- 1) Remove the fusing unit.
- 2) Remove the paper exit reverse unit.
- 3) Remove the front cover right.
- 4) Remove the HDD cover.
- 5) Remove the MFP controller PWB unit.
- 6) Remove the cooling duct.
- 7) Remove the controller duct.
- 8) Remove the screw and the connector, and remove the main duct, the sub duct, and the box cooling duct lower.



- 9) Remove the screw, and remove the controller box upper.



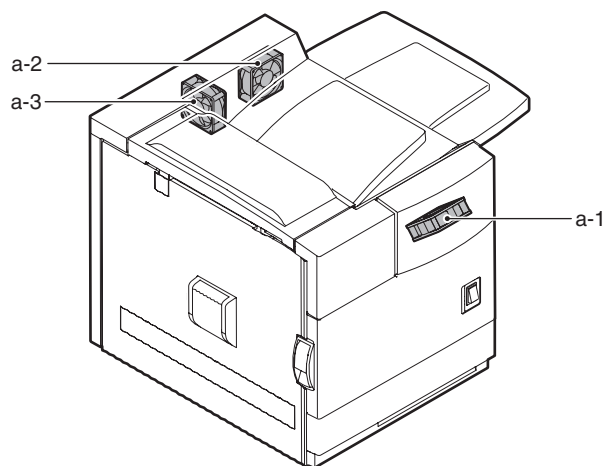
- 10) Remove the screw, and remove the mother PWB.



13. Fan motor

A. Maintenance and parts replacement

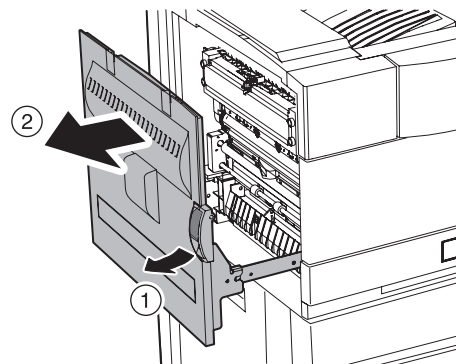
No.	Unit	Parts
a		1 Controller cooling fan motor 1
		2 Controller cooling fan motor 2
		3 Ozone exhaust fan motor



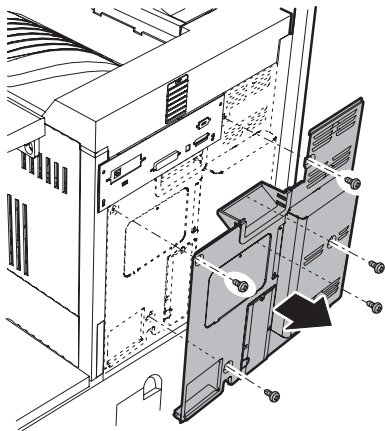
a-1. Controller cooling fan motor 1

a-2. Controller cooling fan motor 2

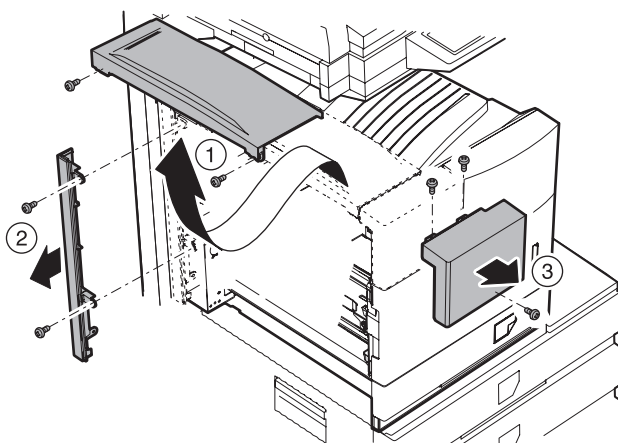
- 1) Pull out the left door.



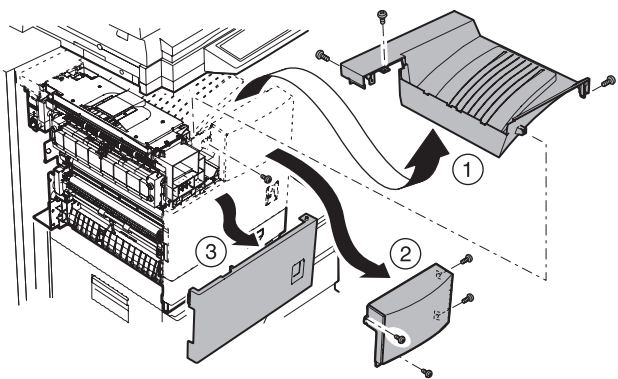
- 2) Remove the screw, and remove the rear cabinet.



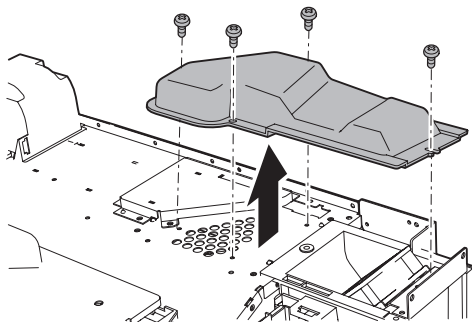
- 3) Remove the screw, and remove the paper exit upper cabinet.
- 4) Remove the screw, and remove the left rear cabinet.
- 5) Remove the screw, and remove the front left upper cabinet.



- 6) Remove the screw, and remove the paper exit tray cabinet.
- 7) Remove the screw, and remove the front right upper cabinet.
- 8) Remove the front door.

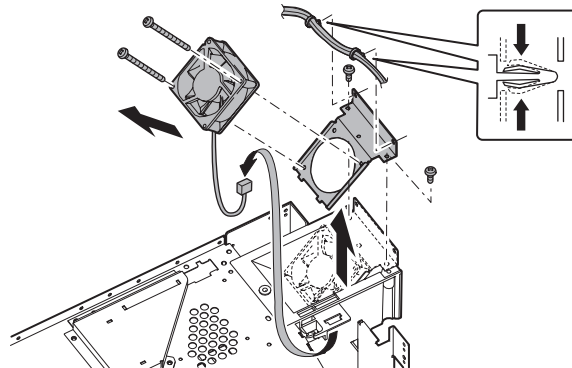


- 9) Remove the screw, and remove the cooling fan duct upper.



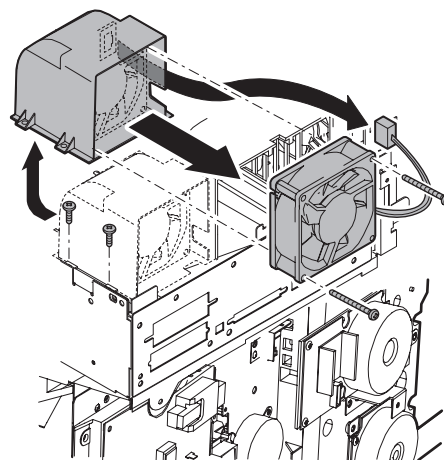
- 10) Remove the snap band, the screw, and the connector, and remove the fan fixing plate.

- 11) Remove the screw, and remove the controller cooling fan motor 1.



* When installing the fan, note the fan direction.

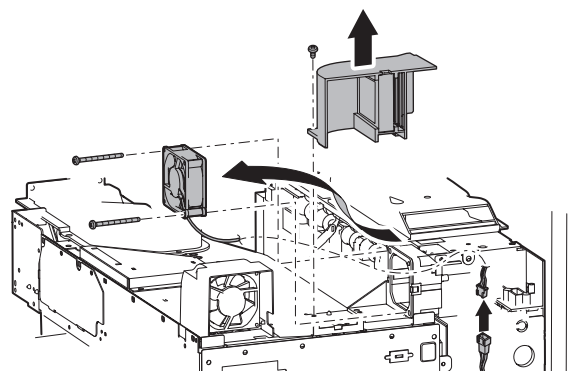
- 12) Remove the connector and the screw, and remove the controller cooling fan motor 2.



* When installing the fan, note the fan direction.

a-3. Ozone exhaust fan motor

- 1) Pull out the left door.
- 2) Remove the rear cabinet.
- 3) Remove the paper exit upper cabinet, the left rear cabinet, and the front left upper cabinet.
- 4) Remove the paper exit tray cabinet, the front right upper cabinet, and the front door.
- 5) Remove the screw, and remove the controller duct.
- 6) Remove the connector and the screw, and remove the ozone exhaust fan motor.



* When installing the fan, check the indication arrow and note the fan direction.

[8] ADJUSTMENTS

No.	Section	Adjustment item	
1	Process section	A	Doctor gap adjustment
		B	MG roller main pole position adjustment
		C	High voltage output adjustment
2	Image check, adjustment	A	Adjustments on the engine side
			<1> LSU right angle adjustment
			<2> Print off-center adjustment
			<3> Each tray resist amount setting
			<4> Self print lead edge adjustment
			<5> Front/rear and left/right void amount setting
		B	Adjustment on the scanner side
			<1> OC scan distortion adjustment
			<2> SPF height adjustment
			<3> SPF scan distortion adjustment
			<4> OC scan magnification ratio adjustment
			<5> SPF scan magnification ratio
			<6> OC scan lead edge adjustment
			<7> SPF scan lead edge adjustment
			<8> Original off-center adjustment
3	Scanner section	A	OC scan distortion adjustment
		B	Vertical image distortion balance adjustment
		C	Vertical image distortion balance adjustment
		D	Vertical (sub scanning direction) distortion adjustment
		E	Height adjustment of original detection light emitting unit
		F	Original size detection photo sensor check
		G	Original size detection photo sensor adjustment
		H	Image density adjustment
		I	DSPF width detection adjustment

1. Process section

A. Doctor gap adjustment

This adjustment is performed in the following cases:

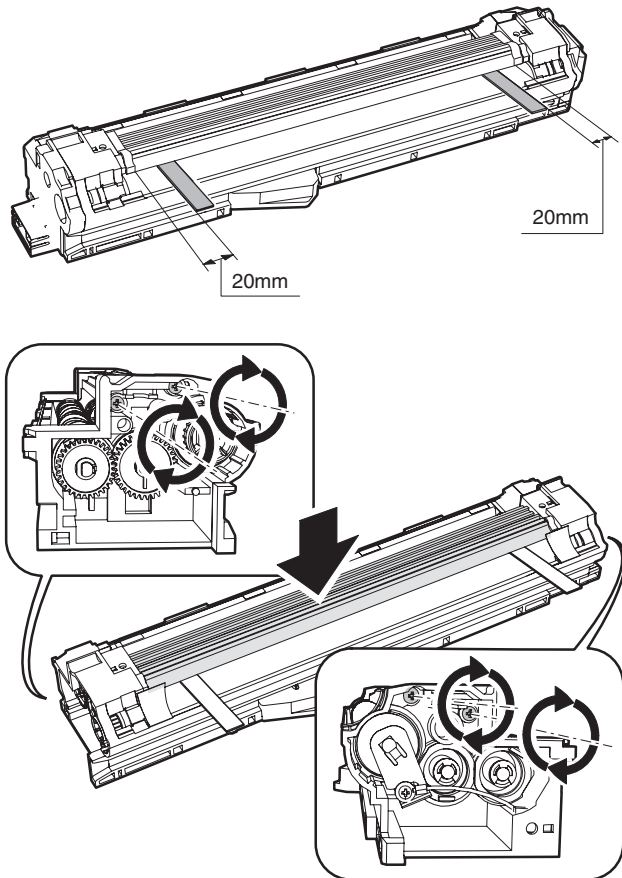
- When developer is scattered.
- When an uneven image is produced.

- 1) Remove the developer cartridge and the developing unit from the machine.
- 2) Remove the DV cover and the developer from the developing unit.
- 3) Remove the DVR cover, the DVF handle, the idle correction plate assembly, and the HG gear 22T, insert a thickness gauge (0.46mm) as shown in the figure below, and check that the clearance is within the specified range.

If the clearance is not within the specified range, adjust the doctor gap in the following procedures.

- 4) Loosen the developing doctor fixing screw A.
- 5) Insert the thickness gauge (0.46mm) again as shown in the figure below.
- 6) Push the developing doctor in the arrow direction and tighten the fixing screw.

- 7) Check the developing doctor gap. If the clearance is within the specified range, fix the screw with screw lock.
- 8) After completion of the job, apply screw lock.



<Adjustment specification>

	Specification	Ambient temperature
Both sides (Position at 20 - 50mm)	0.45±0.03mm	5 - 30°C
Center	0.45 - 0.60mm	

B. MG roller main pole position adjustment

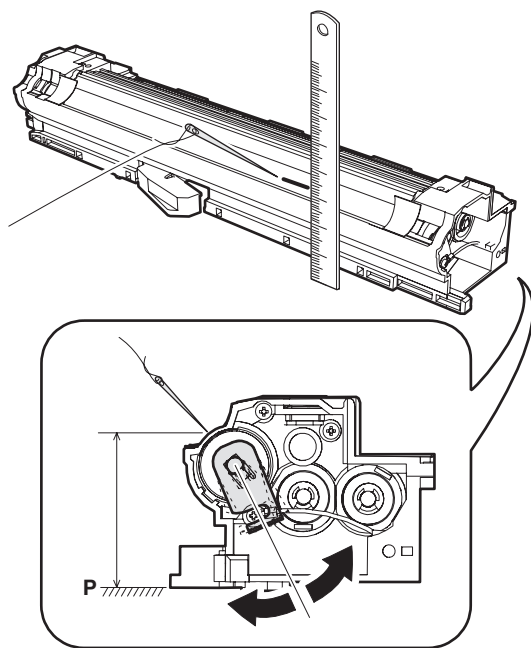
This adjustment is performed in the following cases:

- When developer is scattered.
 - When an uneven image is produced.
- 1) Remove the developer cartridge and the developing unit from the machine.
 - 2) Remove the DV cover and the developer from the developing unit.
 - 3) Remove the DVF handle and put the developing unit on a flat surface.
 - 4) Bind a string to a needle.
 - 5) Hold the string and move the needle toward the MG roller.
(Since the MG roller diameter is small, use of a clip cannot make an accurate adjustment.)
 - 6) With the needle tip 2 - 3 mm apart from the MG roller surface, mark the point on the MG roller in the elongated line of the needle.
(Keep the needle and the MG roller apart from each other.)
 - 7) Measure the distance from the marking position to the P surface of the developing unit, and check that the distance is within the specified range.

If the distance is not within the specified range, perform the adjustment in the following procedures.

- 8) Loosen the fixing screw of the main pole fixing plate.

- 9) Move the adjustment plate in the arrow direction and adjust.



<Adjustment specification>

Marking position	Measure from the P surface above.	Specification
		54.2mm

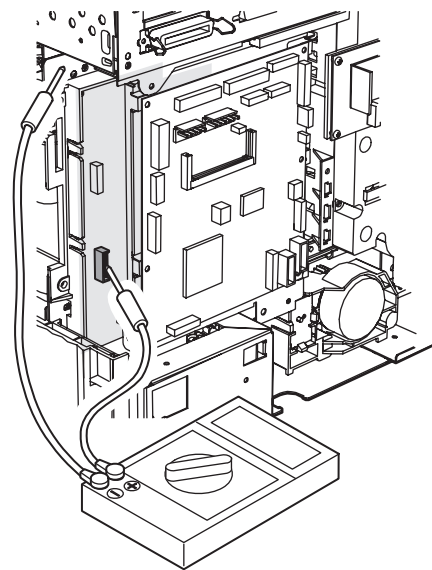
C. High voltage output adjustment

(1) Developing bias output check and setup

- 1) Remove the rear cabinet to allow checking of the high voltage monitor output pin.
- 2) Execute the simulation of the target high voltage.
(See the table below.)
- 3) Select the mode to be set with 10-key, and press START key.
- 4) Enter the set value with 10-key and press START key. The set value is outputted for 30 sec.
- 5) Apply a high voltage tester between the measurement pin and the frame.

Note: Take care not to short the measuring pin and the frame.

- 6) The unit stops after 30 sec of output.

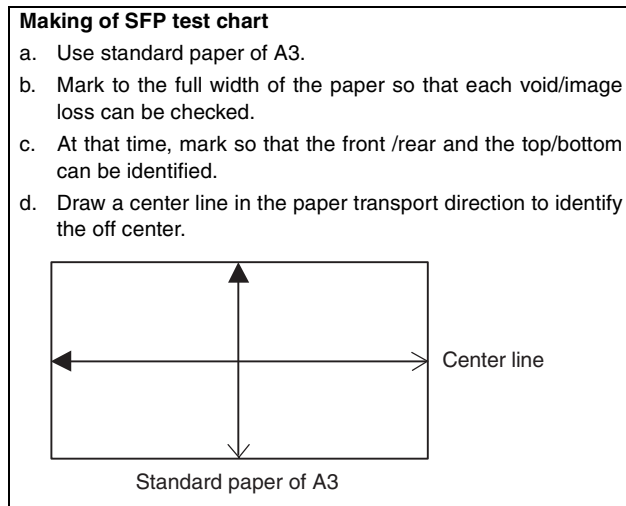


			Default		Set range	Measurement pin	High voltage probe impedance
			Monitor output voltage	Set value			
MC grid MAIN GRID (SIM 8-2)	AUTO	AE mode	45PPM: -650V±5V 35PPM: -620V±5V	45PPM: 645 35PPM: 615	200~900	CN2-7	100MΩ
	CHARACTER	Text mode	-650V±5V	645	200~900		
	MIX	Text/Photo mode	-650V±5V	645	200~900		
	PHOTO	Photo mode	-650V±5V	645	200~900		
	PRINTER	Printer mode	-650V±5V	645	200~900		
	FAX	Fax mode	-650V±5V	645	200~900		
Transfer current (THV+ (SIM 8-6)	FRONT	Front		45PPM: 267 35PPM: 220	0~620		
	BACK	Back		45PPM: 310 35PPM: 267	0~620		
Developing bias DV BIAS (SIM 8-1)	AUTO	AE mode	45PPM: -500V±5V 35PPM: -470V±5V	485	0~745	CN2-1	100MΩ
	CHARACTER	Text mode	-500V±5V	485	0~745		
	MIX	Text/Photo mode	-500V±5V	485	0~745		
	PHOTO	Photo mode	-500V±5V	485	0~745		
	PRINTER	Printer mode	-500V±5V	485	0~745		
	FAX	Fax mode	-500V±5V	485	0~745		
Separation voltage SHV (SIM 8-17)	FRONT	Front	45PPM: +0.22±0.1V 35PPM: +1.37V±0.1V	45PPM: 160 35PPM: 120	0~240	CN2-3	10MΩ
	BACK	Rear	45PPM: +0.22±0.1V 35PPM: +1.37V±0.1V	45PPM: 160 35PPM: 120	0~240		
Transfer voltage THV (SIM 8-17)			-800V±10V	780	0~1250	CN2-5	10GΩ

2. Image check, adjustment

(1) Copy image check

- 1) Place a test chart (UKOG-0089CSZZ) on the reference position of the OC, and make a copy.
- 2) Place a test chart (made as shown below) face-down on the (D)SPF, set the document guide, and make a copy. (Single → Single)
- 3) Place a test chart (made as shown below) face-up on the DSPF, set the document guide, and make a copy. (Duplex → Single)



- 4) Check each output copy.
(Image distortion/ each void/ lead edge position/ Off-center/ Magnification ratio/ Density/ Dirt, etc.)
- 5) If there is no problem in copy images, the image check is completed.

(2) Division of adjustment positions

- 1) If there is any problem in checked images, perform self-print and the adjustment positions (scanner side/ engine side) are divided.
- *: If there is any problem in the copy image and no problem in the self print, an adjustment on the scanner side is required.
If there is any problem on the copy image and any problem in the self print, an adjustment on the engine side is required.

(3) Adjustment procedures

Perform the adjustment procedures as described below.

1	LSU right angle adjustment	SIM64-1: Pattern "71"
2	Print off-center adjustment	SIM50-10
3	Each tray resist amount setting	SIM51-2
4	Print lead edge adjustment	SIM50-5
5	Front/rear and left/right void amount setting	SIM50-1
6	OC scan distortion adjustment	
7	SPF height adjustment	
8	SPF scan distortion adjustment	SIM51-2
9	Scan magnification ratio	SIM48-1
10	SPF/DSPF scan magnification ratio	SIM48-1
11	OC scan lead edge adjustment	SIM50-1
12	SPF scan lead edge adjustment	SIM50-6
13	Original off-center adjustment	SIM50-12

A. Adjustments on the engine side

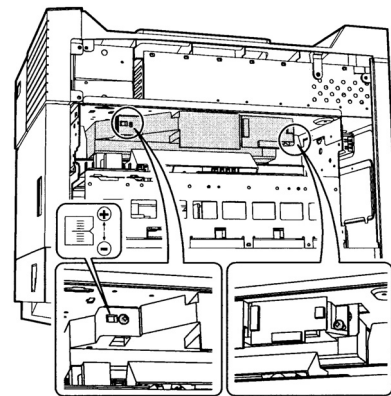
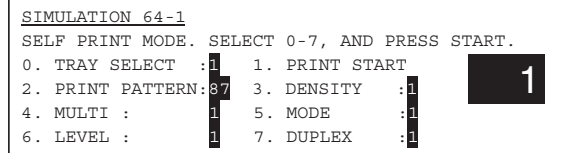
<1> LSU right angle adjustment

Items which must have been completed before this adjustment.

- Nothing special

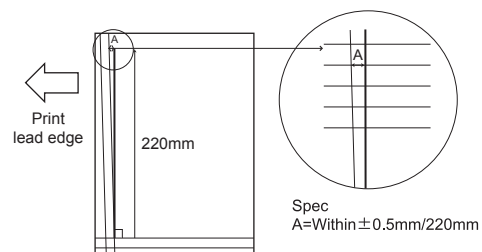
Items which must be executed after completion of this adjustment.

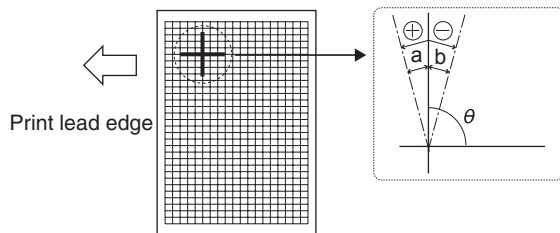
- Print off-center adjustment
 - Print lead edge adjustment
 - Front/rear and left/right void amount setting
- 1) Execute SIM64-1.
 - 2) The print pattern "71" is printed.
 - 3) Check the output print.
 - 4) Loosen two fixing screws of the LSU unit (M4 screws which are fixing the LSU and the top plate).
 - 5) Adjust the LSU fixing position with the adjustment memory as the reference.
 - 6) Tighten two fixing screws of the LSU unit.
 - 7) Print again in the grid pattern and check the print.
 - 8) Repeat procedures 4) to 7) until the specification is satisfied.



<Right angle check method>

- <1> Make self-print of pattern 71.
- <2> Draw a line perpendicular to the sub scan direction (paper transport direction) with a square.
The point of intersection of the perpendicular line and the horizontal line is regarded as the starting point.
- <3> Measure distance A (between the self-printed line and the perpendicular line drawn with a square) at a position of 220mm from the starting point.
- <4> Check that distance A satisfies the following specification.





<Specification>

	Measuring point	Specification	Set value
Print distortion adjustment	Self print pattern 71	$\theta = 90^\circ \pm 0.13^\circ$	θ changes about 0.25 degrees for 1 scale of adjustment. (A shifts about 1mm.)

<2> Print off-center adjustment

Items which must have been completed before this adjustment.

- LSU right angle adjustment (If there is no distortion in self print, the adjustment is not required.)

Items which must be executed after completion of this adjustment.

- Each tray resist amount setting
- Print lead edge adjustment
- Front/rear and left/right void amount setting

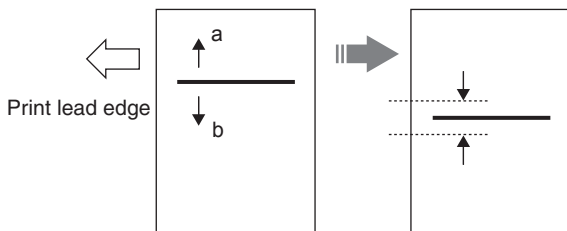
- 1) Execute SIM50-10.
- 2) Set the paper feed tray and the magnification ratio for the adjustment.
- 3) After entering the adjustment values, press START key, and printing is started.
- 4) Check the off-center (distance from the paper edge) of the printed copy. Repeat procedure 2) until the specification is satisfied.

```

SIMULATION 50-10
PRINT OFF-CENTER ADJUSTMENT. SELECT 0-8, AND PRESS
START.
0. TRAY SELECT 1 1. COPY START
2. MAGNIFICATION 100
(ADJUSTMENT DATA)
3. TRAY1 50 4. TRAY2 50 5. TRAY3 50
6. TRAY4 50 7. BPT 50 8. ADU 50
  
```

Adjustment position		Measurement reference	Specification	Set value		
				Default	Range	
Tray 1	Tray 1	Output pattern center line	$0 \pm 1.5\text{mm}$	50	0 - 99	Set value 1: 0.1mm shift
Tray 2	Tray 2					
Tray 3	Tray 3/LCC left					
Tray 4	Tray 4/LCC right					
MFT	Manual feed					
ADU	Duplex					

- For the duplex mode (Single → Duplex), add 10 to the above set value.
- When the print line is shifted toward a from the paper center, decrease the value.
- When the print line is shifted toward b from the paper center, increase the value.



<3> Each tray resist amount setting

* This adjustment is executed when there is any lead edge variation or skew for each tray.

Items which must have been completed before this adjustment.

- LSU right angle adjustment (If there is no distortion in self print, the adjustment is not required.)
- Print off-center adjustment

Items which must be executed after completion of this adjustment.

- Print lead edge adjustment
- Front/rear and left/right void amount setting

- 1) Execute SIM 51-2.
- 2) Enter the resist adjustment value with 10-key.

- 3) Press [START] key.

When [START] key is pressed, the adjustment value is set and paper feed and copying are performed.

- 4) Adjust the resist quantity so that paper is transferred stably.

```

SIMULATION 51-2
RESIST TIMING ADJUSTMENT. SELECT 0-8, AND PRESS START.
0. TRAY SELECT 1 1. PRINT START
2. TRAY1 60 3. TRAY2 50 4. DESK 50
5. BPT 55 6. ADU 50
7. SPF (HIGH) 60 8. SPF (LOW) 75
  
```

Item			Set range	Default	
				MX-M350U/ M350N	MX-M450U/ M450N
2	TRAY1	Tray 1 resist adjustment value	0 - 99	65	60
3	TRAY2	Tray 2 resist adjustment value		55	50
4	DESK	Desk resist adjustment value		55	50
5	BPT	Manual tray resist adjustment value		60	55
6	ADU	ADU resist adjustment value		55	50

When the set value is increased, the warp amount of paper is increased. When the adjustment value is decreased, the warp amount of paper is decreased.

<4> Self print lead edge adjustment

Items which must have been completed before this adjustment.

- LSU right angle adjustment (If there is no distortion in self print, the adjustment is not required.)
- Print off-center adjustment
- Resist amount adjustment

Items which must be executed after completion of this adjustment.

- Front/rear and left/right void amount setting
 - OC scan lead edge adjustment
 - SPF scan lead edge adjustment
- 1) Execute SIM 50-5.
 - 2) Set the lead edge void adjustment value (DENA) as specified below.
(Standard set value) Paper lead edge void: 3.5mm (DENA: 35)
* Set the adjustment value of DENA to 35. (Enter 35 as the adjustment value of DENA, and press [P] key.)
 - 3) Check the lead edge void area on the self print pattern (SIM67-1).
(Enter 1 and press [START] key.)
 - 4) If the adjustment result is not satisfactory, perform the following procedures.
* If the lead edge void area is not 3.5mm:
Change the adjustment value of RRCB and perform the adjustment. (Change the adjustment value of RRCB and press [START] key.)
(Shift for the adjustment value change: 0.1mm/step)

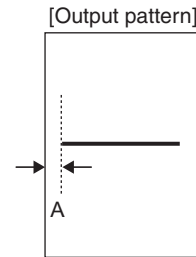
```

SIMULATION 50-5
LEAD EDGE ADJUSTMENT. SELECT 0-20, AND PRESS START.
0. TRAY SELECT 1 1. PRINT START
(ADJUSTMENT DATA)
LEAD EDGE: 2. RRCB 50 3. SIDE2 ADJ. 50
RESIST: 4. T1 50 5. T2 50 6. DESK 50
7. BPT 50 8. ADU 50
OFF CENTER: 9. T1 50 10. T2 50 11. T3 50 12. T4 50
13. BPT 50 14. ADU 50
(VOID SETTING) 15. LEAD_EDGE (DENA) 50
16. TRAIL_EDGE (DENB) 30 17. FRONT/REAR 30

```

<Specification>

	Set position	Specification	Set value
Self print lead edge adjustment SIM 50-5	Print start position A of the output pattern 1	A = 4.0mm or less (Lead and tail total: 8.0mm or less)	Shift of 0.175mm (35ppm) / 0.225mm (45ppm) for set value 1.



<5> Front/rear and left/right void amount setting

Items which must have been completed before this adjustment.

- LSU right angle adjustment (If there is no distortion in self print, the adjustment is not required.)
- Print off-center adjustment
- Resist amount adjustment
- Print lead edge adjustment

Items which must be executed after completion of this adjustment.

- OC scan lead edge adjustment
 - SPF scan lead edge adjustment
- 1) Execute SIM 50-1.
(Lead edge image loss/void area adjustment)
 - 1) Set the lead edge image loss adjustment value (LEAD EDGE) and the paper lead edge void adjustment value (DENA) as follows.
(Standard set value)
Lead edge image loss: 1.5mm (LEDA: 15)
Paper lead edge void: 3.5mm (DENA: 35)
* Set LEAD to 15. (Enter 15 as the adjustment value of LEAD, and press [P] key.) (0.1mm/step)
* Set DENA to 35. (Enter 35 as the adjustment value of DENA, and press [P] key.) (0.1mm/step)
 - 2) Make a copy at the normal ratio (100%) and check the lead edge void area and the image loss. (Enter 100 as the set value of the copy magnification ratio (MAGNIFICATION), and press [START] key.)
 - 3) If the adjustment result is not satisfactory, perform the following procedures.
* If the lead edge void are is not 3.5mm:
Change the adjustment value of RRCB and perform the adjustment. (Change the adjustment value of RRCB and press [START] key.) (1msec/step)
* If the lead edge image loss is not 1.5mm:
Change the adjustment value of RRCA and perform the adjustment. (Change the adjustment value of RRCA and press [START] key.)
(Shift for the adjustment value change: 0.2mm/step)

(Rear edge void area adjustment)

Adjust so that the rear edge void area is 3.5mm. (Change the adjustment value of TRAIL EDGE, and press [START] key.)

(Front/rear frame direction image loss adjustment)

Set the adjustment value of SIDE to 20. (Enter 20 as the adjustment value of SIDE, and press [P] key.)

When the adjustment value is changed, the image position is shifted in the front/rear frame direction.

(Front/rear frame direction void area adjustment)

Adjust so that the total of the front/rear direction void areas is 7.0mm. (Change the adjustment values of FRONT/REAR, and press [START] key.)

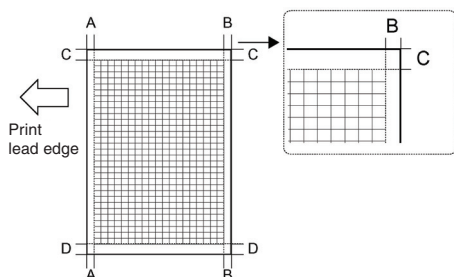
Front frame void area = 3.5mm Rear frame void area = 3.5mm

If, as shown above, the front and the rear void areas are not even, use SIM 50-5 to adjust the image off-center position.

SIMULATION 50-1	
LEAD EDGE ADJUSTMENT. SELECT 0-9, AND PRESS START.	
0. TRAY SELECT 1	1. COPY START
2. MAGNIFICATION 100	
(ADJUSTMENT DATA) 3. RRCA 50	4. RRCB 50 10. SIDE2 ADJ. 50
(IMAGE LOSS SETTING) 5. LEAD 15	6. SIDE 20
(VOID SETTING) 7. LEAD_EDGE (DENA) 35	
8. TRAIL_EDGE (DENB) 35	9. FRONT/REAR 32

<Specification>

	Set position	Specification	Set value
Lead edge void adjustment "LEAD EDGE VOID (DENA)"	Output pattern "71" print void quantity A	A = 4.0mm or less (A and B total: 8.0mm or less)	Shift of 0.1mm for set value 1.
Rear edge void adjustment "TAIL EDGE VOID (DENB)"	Output pattern "71" print void quantity B	B = 4.0mm or less (A and B total: 8.0mm or less)	
Side edge void adjustment "FRONT/REAR"	Output pattern "71" print void quantity C + D	C and D total: 8.0mm or less	



B. Adjustment on the scanner side

<1> OC scan distortion adjustment

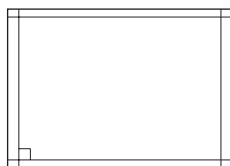
Items which must have been completed before this adjustment.

- Adjustment on the engine side (If there is no problem in self print, no need to adjust.)

Items which must be executed after completion of this adjustment.

- OC scan off-center
- OC scan lead edge adjustment

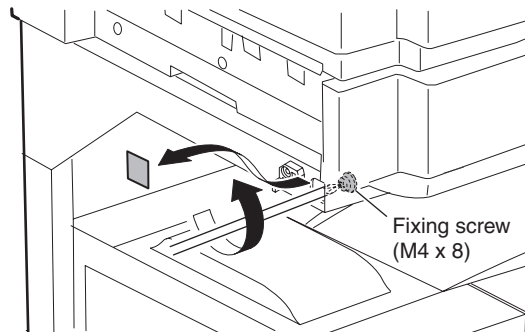
- Make a test chart as shown below. (Make a self-print pattern 71.)



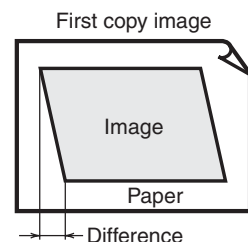
- Make a copy from the table glass, and check it. At that time, set the test chart correctly. If it is set in a distorted position, the adjustment cannot be made correctly.
- If the output value is not in the specified range, perform the following adjustment.
- Adjust the distortion.

Use a level gauge to check that the scanner is installed horizontally.

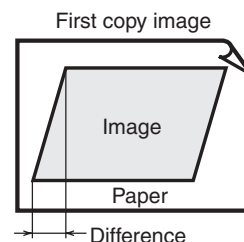
Make a copy and check it. If there is any distortion as shown in Fig. 1 or Fig. 2, loosen the scanner fixing screw (M4 x 8) and the cam A fixing screw (M3 x 12) and adjust.



[Fig. 1]



[Fig. 2]



• In the case of Fig. 1

Shift cam A in the direction A by the difference in the copy image. For one scale (one groove), shift by 0.5mm.

After shifting, tighten the fixing screw (M3 x 12) of cam A and make a copy again, and check the copy again to insure that there is no distortion.

• In the case of Fig. 2

Shift cam A in the direction B by the difference in the copy image. For one scale (one groove), shift by 0.5mm.

After shifting, tighten the fixing screw (M3 x 12) of cam A and make a copy again, and check the copy again to insure that there is no distortion.

After adjustment, tighten the fixing screw (M3 x 12) and the scanner fixing screw (M4 x 8).

* If the above adjustment does not fix the problem, perform the MB rail adjustment.

* After the OC distortion adjustment, perform SIM53-8 SPF scanning position automatic adjustment.

<2> SPF height adjustment

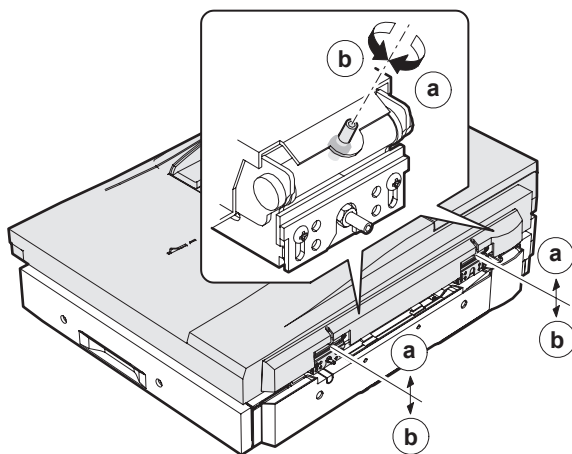
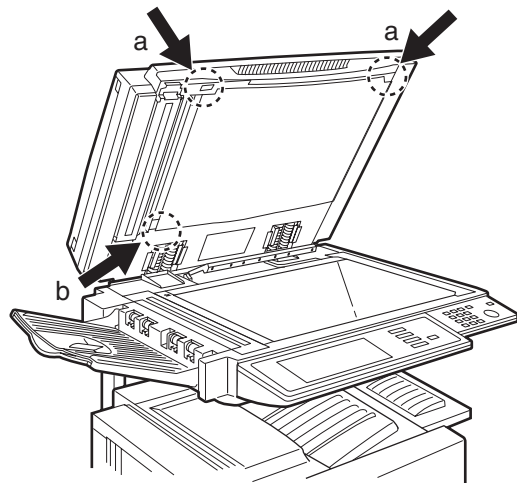
Items which must have been completed before this adjustment.

- Nothing special

Items which must be executed after completion of this adjustment.

- Nothing special

- Close the (D)SPF.
- Check to confirm that the dove and the reference plate in the figure below are in contact with the table glass (point a) and the side guide (point b). (Place copy paper under the dove and pull it out.) If they are not in contact, adjust with the set screw.



<Specification>

	Specification	Adjustment position
Distance between dove (Reference plate) and table glass	3-point contact (Left front/Left rear/Right front when viewed from the front)	Hinge adjustment set screw

<3> SPF scan distortion adjustment

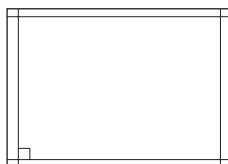
Items which must have been completed before this adjustment.

- Adjustment on the engine side (If there is no problem in self print, no need to adjust.)
- OC scan distortion adjustment
- SPF height adjustment

Items which must be executed after completion of this adjustment.

- SPF off-center
- SPF lead edge adjustment
- Front/rear and left/right void amount setting

- 1) Make a test chart as shown below. (Print a self-print pattern 71.)
- 2) Make a copy with DSPF.
- 3) Check that it is in the specified range.



- 4) Execute SIM51-2 to check the SPF set value.

Change the set value of the SPF resist amount to the following value.

7	SPF (HIGH)	60
8	SPF (LOW)	75

SIMULATION 51-2

RESIST TIMING ADJUSTMENT. SELECT 0-8, AND PRESS START.

0. TRAY SELECT 1 1. PRINT START

2. TRAY1 60 3. TRAY2 50 4. DESK 50

5. BPT 55 6. ADU 50

7. SPF (HIGH) 60 8. SPF (LOW) 75

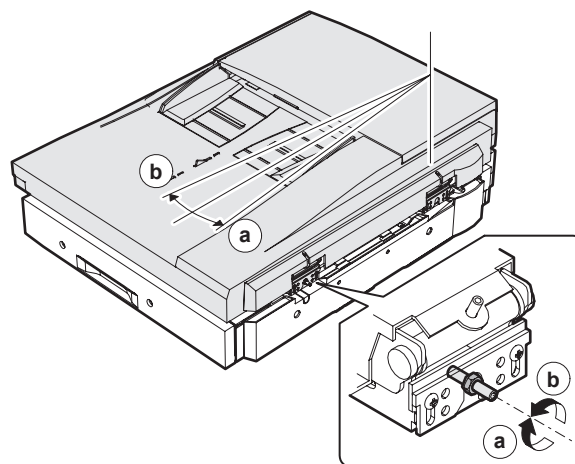
1

- 5) Though the SPF resist amount is the above value, if there is any distortion in SPF scan, adjust the SPF installing position in the following procedures.

- 6) Loosen the nut which is fixing the adjustment set screw of the hinge R, and adjust the adjustment set screw.

- 7) Make a copy again, and check again that the value is in the specified range.

- 8) Tighten the nut to fix the adjustment screw.



<Specification>

	Specification	Adjustment position
Skew feed	Within $\pm 3\text{mm}$	Hinge R adjustment screw

* After the SPF distortion adjustment, perform SIM53-8 SPF scanning position automatic adjustment.

<4> OC scan magnification ratio adjustment

Items which must have been completed before this adjustment.

- Adjustment on the engine side (If there is no problem in self print, no need to adjust.)
- OC scan distortion adjustment

Items which must be executed after completion of this adjustment.

- OC scan lead edge adjustment
- Original off-center adjustment

- 1) Place a print of self-print pattern (A3 or WLT) 70 or a scale on the table glass.
- 2) Close the original cover, and make a copy.
- 3) Check that the value is within the specification.
- 4) If the value is not within the specified range, execute SIM48-1 (item 3, 4).
- 5) Make a copy again and check again that the value is within the specification.

<u>SIMULATION 48-1</u>			
MAGNIFICATION ADJUSTMENT. SELECT 0-7, AND PRESS START.			
0. TRAY SELECT	1	1. COPY START	
2. MAGNIFICATION	100		
3. CCD (MAIN)	50	4. CCD (SUB)	50
5. SPF (MAIN)	50	6. SPF (SUB)	50
		7. CIS (MAIN)	50

<Specification>

	Specification	Adjustment position	Adjustment value
Main scan direction magnification ratio CCD (MAIN)	±0.5%	SIM48-1 (3, 4)	Set value 1: 0.1% change
Sub scan direction magnification ratio CCD (SUB)			

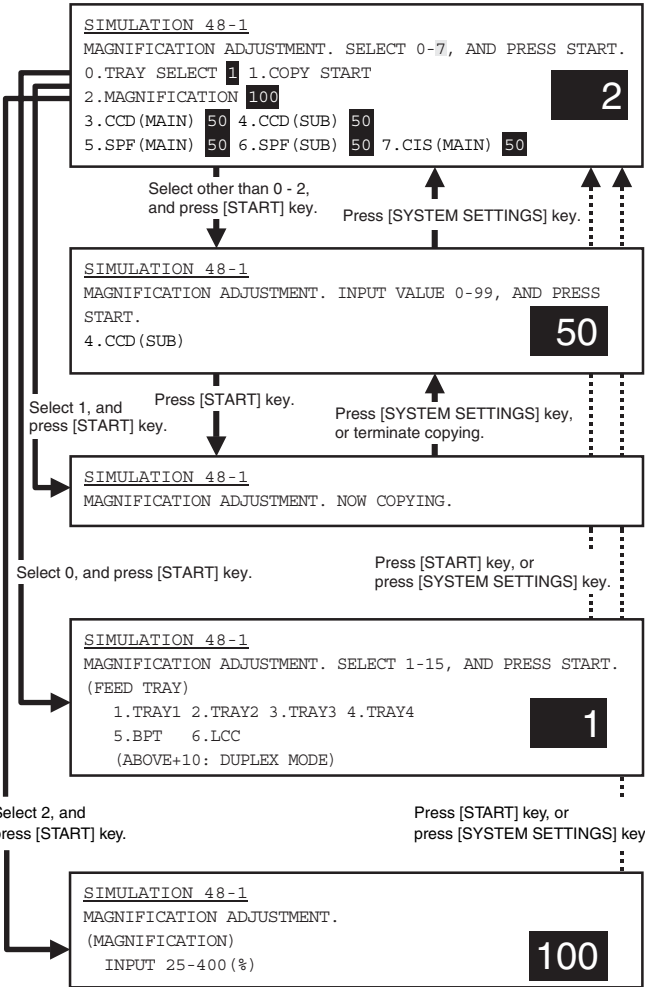
<5> SPF scan magnification ratio

Items which must have been completed before this adjustment.

- Adjustment on the engine side (If there is no problem in self print, no need to adjust.)
- OC scan distortion adjustment
- SPF scan distortion adjustment
- OC scan magnification ratio
- SPF height adjustment

Items which must be executed after completion of this adjustment.

- SPF scan lead edge adjustment
 - Original off-center adjustment
- 1) Set a chart of print pattern 70 on SPF/DSPF.
 - 2) Make a copy. (In the case of DSPF back copy, make a single copy in the duplex mode.)
 - 3) Check that the output paper satisfies the specifications.
 - 4) If the value is not within the specified range, execute SIM48-1 (item 5, 6).
 - 5) Make a copy again, and check that the output paper satisfies the specifications.



<Specifications>

	Specifications	Adjustment position	Adjustment value
SPF sub scan direction magnification ratio SPF (SUB)	±0.5%	SIM 48-1 (5, 6)	Set value 1: 0.1% change
DSPF main scan (back) direction magnification ratio CIS (MAIN)			

* The SPF main scan direction magnification ratio is common with OC.

<6> OC scan lead edge adjustment

Items which must have been completed before this adjustment.

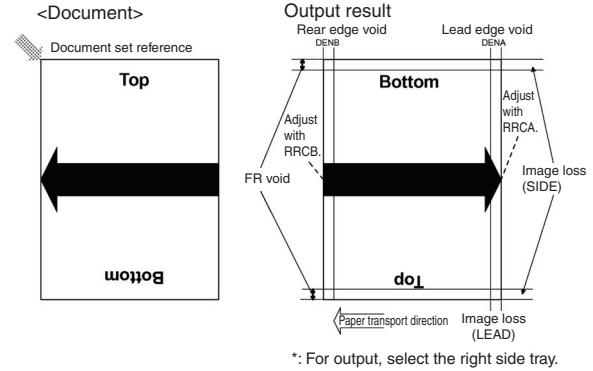
- Adjustment on the engine side (If there is no problem in self print, no need to adjust.)
- OC scan distortion adjustment
- SPF scan distortion adjustment
- OC scan magnification ratio adjustment

Items which must be executed after completion of this adjustment.

- SPF scan lead edge adjustment
 - Original off-center adjustment
- 1) Set an original on the original table.
 - 2) Enter SIM 50-1.
 - 3) Make a copy.
 - 4) Select the number to be set on the right of the LCD, and perform the adjustment of each item.
 - 5) Select "4: RRC-B" so that the distance between the paper lead edge and the copy image lead edge is within 4.0mm. Change the value with 10-key and perform the copy adjustment.
 - 6) Select "5: DEN-B" so that the white spot in the latter half of copy (rear edge void) is within 4.0mm. Change the value with 10-key and perform the copy adjustment.
(The rear void adjustment is changed by the step of 0.1mm.)
 - When the rear edge void is too small, increase the value.
 - When the rear edge void is too great, decrease the value.
 - 7) Select "3: RRC-A," change the value with 10-key, and adjust the document scan start position.
 - 8) Press [CA] key to cancel the simulation.

```

SIMULATION 50-1
LEAD EDGE ADJUSTMENT. SELECT 0-9, AND PRESS START.
0. TRAY SELECT 1 1. COPY START
2. MAGNIFICATION 100
(ADJUSTMENT DATA) 3. RRCA 50 4. RRCB 50 10. SIDE2 ADJ. 50
(IMAG LOSS SETTING) 5. LEAD 15 6. SIDE 20
(VOID SETTING) 7. LEAD_EDGE (DENA) 35
8. TRAIL_EDGE (DENB) 35 9. FRONT/REAR 32
  
```



<7> SPF scan lead edge adjustment

Items which must have been completed before this adjustment.

- Adjustment on the engine side (If there is no problem in self print, no need to adjust.)
- SPF scan distortion adjustment
- SPF scan lead edge adjustment
- SPF magnification ratio adjustment

Items which must be executed after completion of this adjustment.

- SPF/DSPF off-center adjustment
- 1) Make a copy of a chart which indicates the image loss amount of each side with SPF/DSPF.
 - 2) Execute SIM50-6 and change the values.

```

SIMULATION 50-6
LEAD EDGE ADJUSTMENT (SPF). SELECT 0-10, AND PRESS START.
0. TRAY SELECT 1 1. COPY START
2. MAGNIFICATION 100
(ADJUSTMENT DATA) 3. SIDE1 50 4. SIDE2 50
(IMAG LOSS SETTING)
SIDE1: 5. LEAD_EDGE 15 6. FRONT/REAR 20 7. TRAIL_EDGE 0
SIDE2: 8. LEAD_EDGE 15 9. FRONT/REAR 20 10. TRAIL_EDGE 0
  
```

<Specification>

Item	Content	Specification	Set range	Default	
(Lead edge adjustment value)					
3	RRCA	Document scan start position	0 - 99	50	Set value 1: 0.1mm shift
4	RRCB	Resist roller clutch ON timing adjustment value			
10	SIDE2 ADJ.	Correction value for RRCB when refereeing from ADU	1 - 99	50	
(Image loss set value)					
5	LEAD	Lead edge image loss set value	0 - 99	15	Set value 1: 0.1mm shift
6	SIDE	Side image loss set value		20	
(Void set value)					
7	LEAD_EDGE (DENA)	Lead edge void set value	0 - 99	35	Set value 1: 0.1mm shift
8	TRAIL_EDGE (DENB)	Rear edge void adjustment value			
9	FRONT/ REAR	Front/Rear void adjustment value		Total 8mm or less	

<Set values 1>

Item	Set range	Default
0 TRAY SELECT	Paper feed tray selection	1 - 6
1 COPY START	Copy START (Default)	—
2 MAGNIFICATION	Print magnification ratio	25 - 200%
(Lead edge adjustment value)		
3 SIDE1	Front surface document scan start position adjustment value	0 - 99
4 SIDE2	Back surface document scan start position adjustment value	50
(Image loss set value: SIDE 1)		
5 LEAD_EDGE	Front surface lead edge image loss set value	0 - 99
6 FRONT_REAR	Front surface side edge image loss set value	15
7 TRAIL_EDGE	Front surface rear edge image loss set value	20
(Image loss set value: SIDE 2)		
8 LEAD_EDGE	Back surface lead edge image loss set value	0 - 99
9 FRONT/REAR	Back surface side edge image loss set value	15
10 TRAIL_EDGE	Back surface rear edge image loss set value	20

<Display values 1>

Normal display		NOW COPYING
ERROR display	Door open	DOOR OPEN.
	Jam	JAM
	Paper empty	PAPER EMPTY.

<Set values 2>

1	TRAY1
2	TRAY2
3	TRAY3
4	TRAY4
5	Manual feed

* With the above + 10, the SPF enters the duplex mode (DD), making duplex copy.

<Set values 3>

Set range	25 - 200%
-----------	-----------

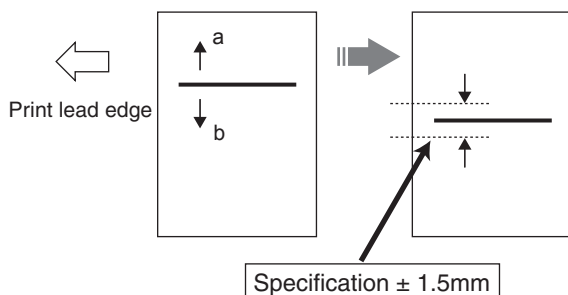
<8> Original off-center adjustment

Items which must have been completed before this adjustment.

- Adjustment on the engine side (If there is no problem in self print, no need to adjust.)
- OC scan distortion adjustment
- SPF scan distortion adjustment
- OC scan magnification ratio
- SPF scan lead edge adjustment

Items which must be executed after completion of this adjustment.

- Nothing special
- Set an original on the original table.
 - Execute SIM 50-12.
 - Select the paper feed tray and the magnification ratio.
 - After entering the adjustment value, press START key, and printing is started.
 - Check the off-center (distance from the paper lead edge) of the printed copy. Repeat procedure 2 until the printed copy satisfies the specifications.



SIMULATION 50-12

ORIGINAL OFF-CENTER ADJUSTMENT. SELECT 0-9, AND PRESS START.

0. TRAY SELECT **1** 1. COPY START

2. MAGNIFICATION **100**

(ADJUSTMENT DATA)

3. PLATEN **50** 4. SPF SIDE1 **50** 5. SPF SIDE2 **50**

	Adjustment position		Measurement reference	Specification	Set value		
					Default	Range	
Original off-center SIM50-12	PLATEN	OC mode	Copy output center line	As shown in the table below.	50	0 - 99	Set value 1: 0.1mm shift
	SPF SIDE1	SPF front surface adjustment					
	SPF SIDE2	SPF back surface adjustment					

- For the duplex mode (Single → Duplex), add 10 to the above set value.
- When the print line is shifted toward a from the paper center, decrease the value.
- When the print line is shifted toward b from the paper center, increase the value.

<Specifications>

Machine (OC mode)	Single	±1.5mm
	Duplex	±1.7mm
Overall (DSPF)	Single S - S	±2.8mm
	Single D - S	±3.5mm
	Duplex S - D	±3.0mm
	Duplex D - D	±3.5mm

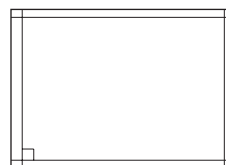
3. Scanner section

A. OC scan distortion adjustment (MB-B rail height adjustment)

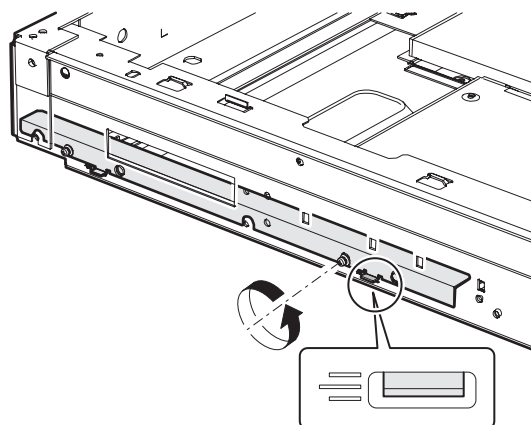
- This adjustment requires a high-level preciseness. It is easier to perform the scanner unit distortion adjustment previously described.

Before performing this adjustment, the following adjustment must have been completed.

- LSU right angle adjustment
- Make a test chart as shown below. (Print a self-print pattern 71.)



- Make a copy from the table glass, and check it. At that time, set the test chart correctly. If it is set in a distorted position, the adjustment cannot be made correctly.
- If the output value is not in the specified range, perform the following adjustment.
- Remove the front cabinet in front of the scanner, and check that installing position of the MB rail.
- Loosen the screw at the right of the MB rail to adjust.

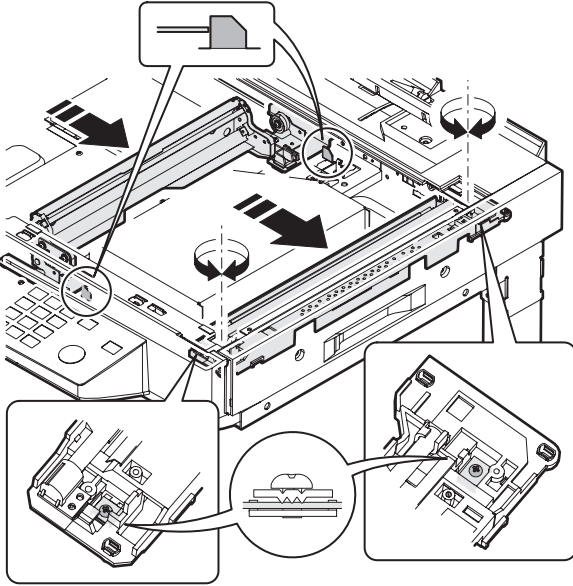


<Specifications>

Measurement point	Specification	Set value	
OC scan distortion adjustment	Angle θ in the above figure	$\theta = 90^\circ \pm 0.13^\circ$	1 scale = about 0.25° shift in θ

B. Vertical image distortion balance adjustment (Copy lamp unit installing position adjustment)

- 1) Insert the front/rear mirror base drive wire into the frame groove and press and fix it with the wire holder. At that time, do not tighten the wire fixing screw. Change the direction of the lamp positioning plate. (F and R)
- 2) Push the copy lamp unit onto the positioning plate, and tighten the wire fixing screw.



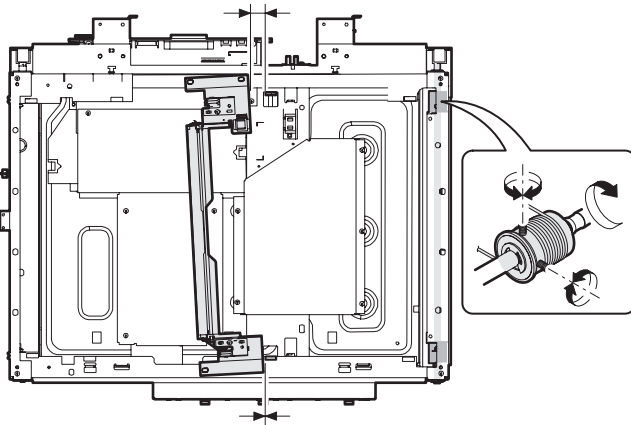
<Note for assembling the copy lamp unit>

After fixing, manually shift the copy lamp unit a few times to check that it moves smoothly.

C. Vertical image distortion balance adjustment (No. 2/3 mirror base unit installing and position adjustment)

This adjustment is to adjust the parallelism of the mirror base to the OPC drum surface and the original surface.

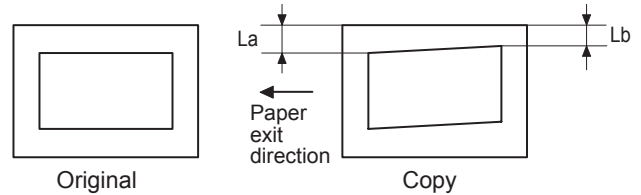
- 1) Manually turn the mirror base drive pulley to bring mirror base B into contact with mirror base positioning plate.
If, at that time, the front frame side and the frame side of mirror base B are brought into contact with the mirror base positioning plate simultaneously, the parallelism is correct and there is no need for adjustment.



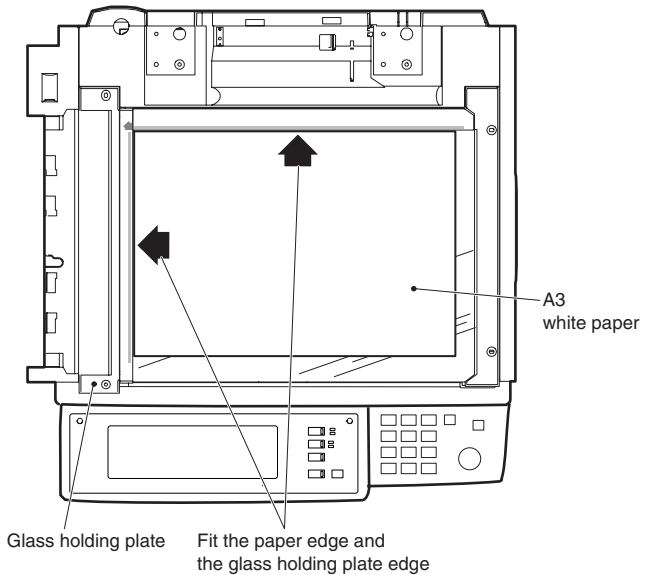
D. Vertical (sub scanning direction) distortion adjustment [Winding pulley position adjustment]

This adjustment is executed in the following cases:

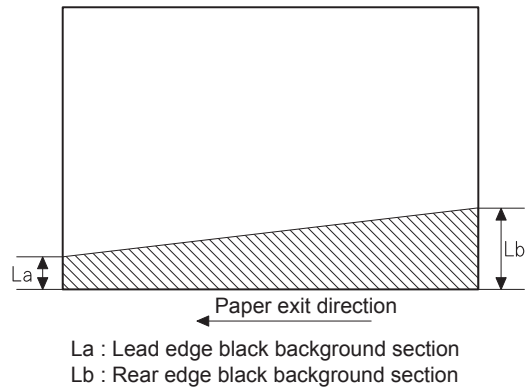
- When the mirror base drive wire is replaced.
- When the lamp unit, or No. 2/3 mirror holder is replaced.
- When a copy shown below is made.



- 1) Set A3 white paper on the original table as shown below.



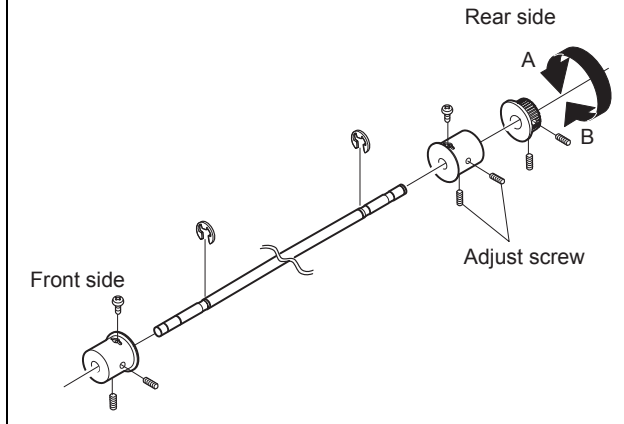
- 2) With the original cover open, make a normal (X 1.0) copy.
- 3) Measure the black distance at the lead edge and the rear edge of the copy paper.



If $La = Lb$, the procedures 4) through 7) are not required.

- Loosen the fixing screw of the front or the rear frame mirror base drive pulley.

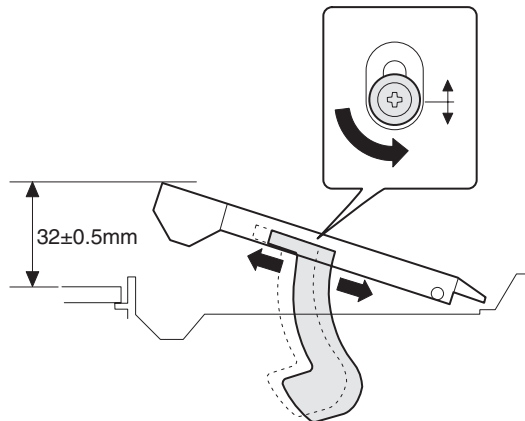
- If $L_a < L_b$, turn the rear frame mirror base drive pulley in direction B.
(Do not move the mirror base drive pulley shaft.)
- If $L_a > L_b$, turn the rear frame mirror base drive pulley in direction A.
(Do not move the mirror base drive pulley shaft.)



- Tighten the fixing screw of the mirror base drive pulley.
- Perform procedures 1) through 3).
- If L_a is not equal to L_b , perform procedures 4) and 5).
If $L_a = L_b$, the adjustment is completed.
Repeat procedures 1) through 6) until $L_a = L_b$.

E. Height adjustment of original detection light emitting unit

- Execute SIM 41-3.
- Open the original cover. Press the original detection light-emitting unit gradually with your finger to check the height at which OCSW display on the LCD is highlighted.



- Open the original detection light-emitting unit gradually to check the height at which OCSW display turns to the normal state.
- If the heights are out of the specified range in procedures 2) and 3), adjust the height of the original detection light emitting unit by shifting the adjustment screw.

SIMULATION 41-3

PD SENSOR DATA DISPLAY.

OCSW

PD1 [128] : 200	PD2 [128] : 200
PD3 [128] : 50	PD4 [128] : 52
PD5 [128] : 51	PD6 [128] : 50
PD7 [128] : 52	

- After completion of adjustment, press the original detection light emitting unit fully downward with your finger and release it. Check that the original detection light-emitting unit moves up smoothly.

<Specification>

	Specification	Adjustment position	
Original size detection position	32±0.5mm	Height adjustment screw	SIM 41-3

F. Original size detection photo sensor check

- Execute SIM 41-1.
- Put A3 (or WLT) paper on the table glass, and check that all the sensor displays (except for OCSW) on the LCD are high-lighted.
- Gradually move the unit to the left, and check that the high-lighted sensor displays turn off one by one sequentially.

SIMULATION 41-1

PD SENSOR CHECK..

OCSW PD1 PD2 PD3 PD4 PD5 PD6 PD7

G. Original size detection photo sensor adjustment

- Execute SIM 41-2.
* At that time, check that the scanner mirror base is at the home position.
- Open the document cover. Select 1 without placing paper on the table glass, and press START.
- When COMPLETE is displayed on the LCD, press SYSTEM SETTINGS to return to the initial screen.
- Place A3 (or WLT) paper on the table glass, select 2 and press START.
When COMPLETE is displayed, the adjustment is normally completed.

* If ERROR is displayed, the error PD sensor is displayed.

SIMULATION 41-2

PD SENSOR ADJUSTMENT. SELECT1-2, AND PRESS START.
(PLEASE OPEN THE ORIGINAL COVER.)

- NO ORIGINAL
- A3 ORIGINAL

1

Select 1 and
press [START] key.

Press [SYSTEM SETTINGS]
key.

SIMULATION 41-2

PD SENSOR ADJUSTMENT.

NO ORIGINAL ... COMPLETE (or "ERROR at PD1 PD2...")
A3 ORIGINAL ... INCOMPLETE

Select 2 and press [START] key.
(Error)

Press [SYSTEM SETTINGS]
key.

SIMULATION 41-2

PD SENSOR ADJUSTMENT.

NO ORIGINAL ... COMPLETE
A3 ORIGINAL ... COMPLETE (or "ERROR at PD1 PD2...")

<Specification>

	Specification	Adjustment
Document size detection photo sensor adjustment	COMPLETE	SIM 41-2

H. Image density adjustment

The image density adjustment is required for the following copy quality mode by using the simulation.

There are two methods; the collective adjustment and the individual adjustment of the copy quality mode.

- Copy mode

Copy quality mode Collective		Adjustment	Individual adjustment
Binary value mode	Auto mode	SIM46-2	
	Character mode		SIM46-9
	Character/Photo mode		SIM46-10
	Photo mode		SIM46-11

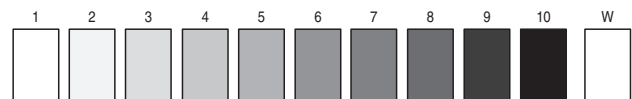
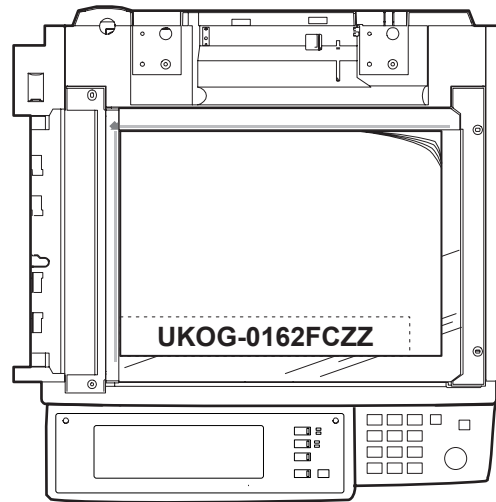
- FAX mode

			Adjustment	Individual adjustment
Normal mode	Binary value mode	AUTO	SIM46-12	SIM46-13
		EXP1.0		
		EXP2.0		
		EXP3.0		
		EXP4.0		
		EXP5.0		
Small text mode	Binary value mode	AUTO	SIM46-14	SIM46-14
		EXP1.0		
		EXP2.0		
		EXP3.0		
		EXP4.0		
		EXP5.0		
	Half tone mode	AUTO		
		EXP1.0		
		EXP2.0		
		EXP3.0		
Fine mode	Binary value mode	AUTO	SIM46-15	SIM46-15
		EXP1.0		
		EXP2.0		
		EXP3.0		
		EXP4.0		
		EXP5.0		
	Half tone mode	AUTO		
		EXP1.0		
		EXP2.0		
		EXP3.0		
		EXP4.0		
		EXP5.0		
Super fine mode	Binary value mode	AUTO	SIM46-16	SIM46-16
		EXP1.0		
		EXP2.0		
		EXP3.0		
		EXP4.0		
		EXP5.0		
	Half tone mode	AUTO		
		EXP1.0		
		EXP2.0		
		EXP3.0		
600dpi mode	Binary value mode	AUTO	SIM46-45	SIM46-45
		EXP1.0		
		EXP2.0		
		EXP3.0		
		EXP4.0		
		EXP5.0		
	Half tone mode	AUTO		
		EXP1.0		
		EXP2.0		
		EXP3.0		

(1) Copy mode

a. Test chart setting

- 1) Place a test chart (UKOG-0162FCZZ) on the original table as shown below.
- 2) Place several sheets of A3 (11 x 17) white paper (Sharp's specified paper) on the test chart at the rear reference.



Test chart comparison

	1	2	3	4	5	6	7	8	9	10	W
UKOG-0162FCZZ DENSITY No.											
UKOG-0089CSZZ DENSITY No.	0.1		0.2		0.3				0.5	1.9	0
KODAK GRAY SCALE		1		2		3		4		19	A
SHARP CORPORATION MADE IN JAPAN											

b. Density adjustment procedure

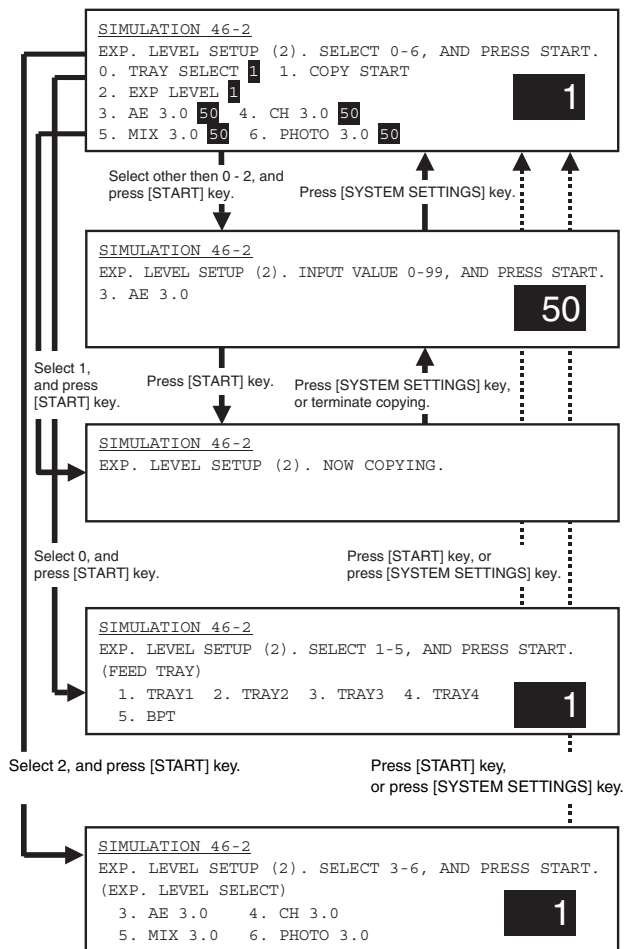
<1> Collective adjustment of two or more copy quality modes

Normally this adjustment is performed with SIM 46-2. In this method, two or more copy density adjustments in different modes can be adjusted collectively.

- 1) Execute SIM 46-2.

(Binary value mode)

Quality mode	Linked simulation data
AE3.0 (AE)	
CH3.0 (Character)	SIM46-9
MIX3.0 (Character/Photo)	SIM46-10
PH3.0 (Photo)	SIM46-11



2) Press the COPY button to make a copy.

Check that the copy density is as shown in the table below.
If not, change the adjustment value.

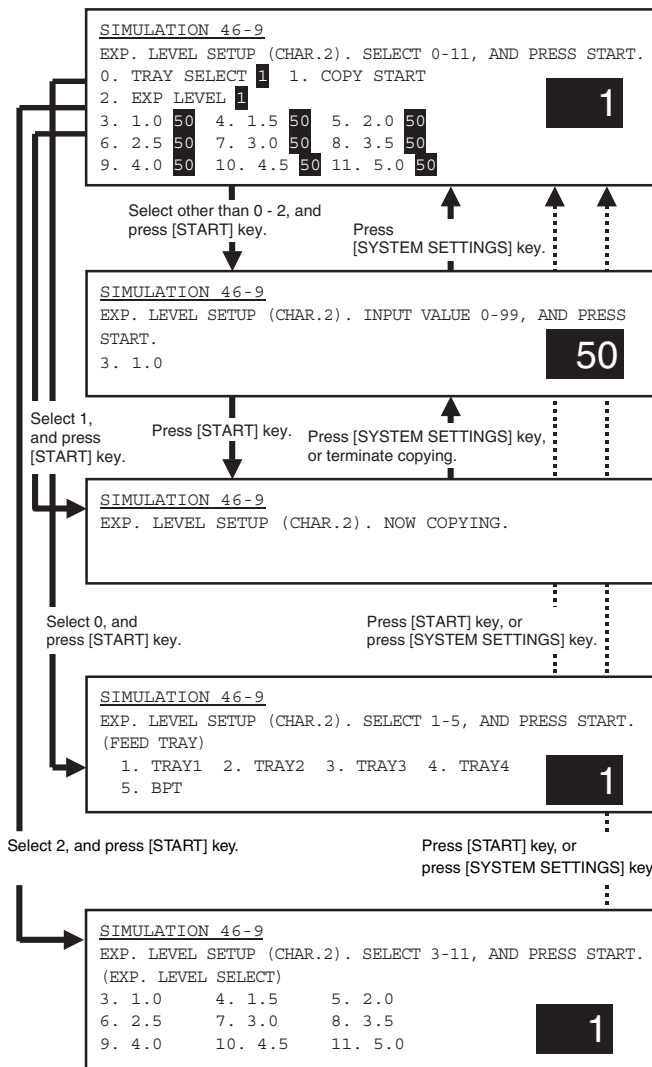
• Adjustment spec					
Mode	EXP.	Chart No.	Adjustment level	Chart No.	Adjustment level
Character	3	3	Copied	2	Not copied
Character/Photo	3	3	Copied	2	Not copied
Photo	3	3	Copied	2	Not copied
Auto		3	Copied	2	Not copied

If the copy density is too light, increase the adjustment value.
If the copy density is too dark, decrease the adjustment value.
Adjustment range: 30 - 170

<2> Individual adjustment of each copy quality mode

This adjustment is used when a different density level for different copy quality mode is required. SIM 46-5 to -7 and SIM 46-9 to -11 are used.

1) Execute the simulation corresponding to the copy quality mode to be adjusted.



2) Press the COPY button to make a copy

Check that the copy density is as shown in the table below. If not, change the adjustment value.

For the auto mode, there is only one adjustment value. For the other modes, the adjustment value for each density level must be adjusted.

(2) Adjusting the print quality in fax mode

This adjustment is needed in the following situations:

- The CCD unit has been replaced.
- U2 trouble has occurred.
- The MFP control PWB has been replaced.
- The EEPROM on the MFP control PWB has been replaced.
- The scanner control PWB has been replaced.
- The EEPROM on the scanner control PWB has been replaced.
- One or more parts of the scanner (reading) section have been replaced.

(Fax mode image density adjustment items)

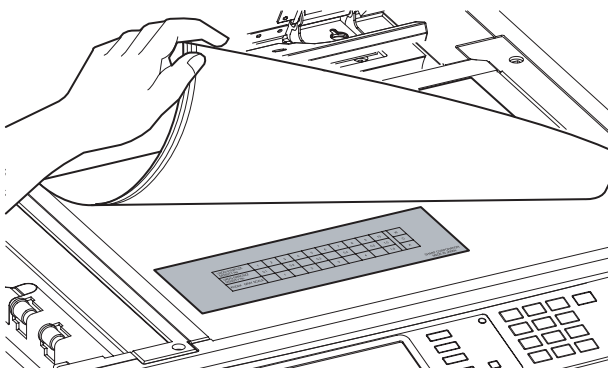
Image mode			Simulation for adjustment	
			All-mode adjustment	Individual-mode adjustment
Fax mode print density adjustment (standard mode)	Auto mode	Binary mode	46-12	46-13
	Manual	Binary mode		
Fax mode print density adjustment (small-character mode)	Auto mode	Binary mode	46-14	46-14
	Manual	Binary mode		
Fax mode print density adjustment (fine mode)	Auto mode	Half tone mode	46-15	46-15
	Manual	Half tone mode		
Fax mode print density adjustment (super fine mode)	Auto mode	Binary mode	46-16	46-16
	Manual	Binary mode		
Fax mode print density adjustment (600dpi mode)	Auto mode	Half tone mode	46-45	46-45
	Manual	Half tone mode		

(Fax mode density)

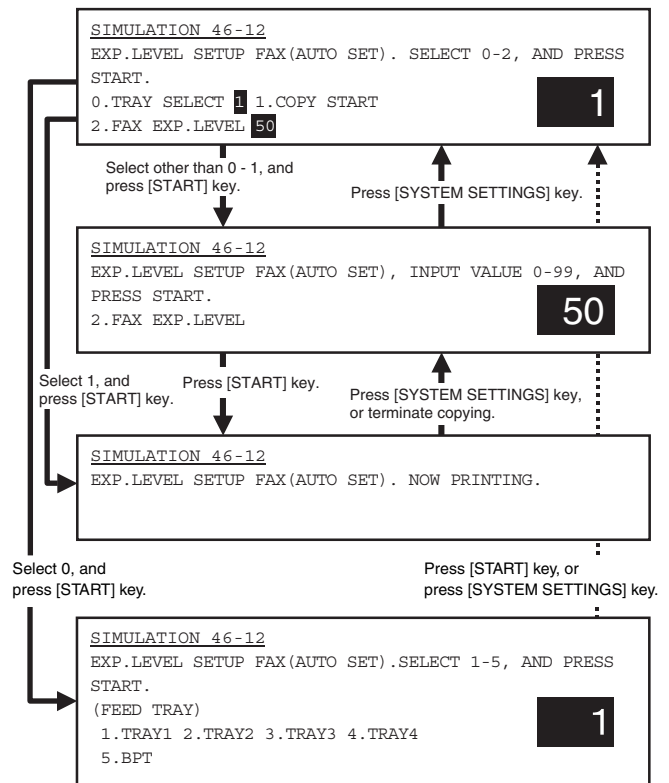
The print density settings should be normally left at defaults but should be adjusted according to user requests, if any.

a. Adjust the fax mode print density for all modes at once

- 1) Set the test chart (UKOG-0162FCZZ) on the original table so that it aligns with the front frame. Then put four or five pieces of A3 (11" x 17") paper .



- 2) Go through the modes specified in Simulation 46-12.



Item			Set range	Default
0	TRAY SELECT	Paper feed tray selection	—	—
1	COPY START	Copy START (Default)		
2	FAX EXP. LEVEL	FAX mode print density	0 - 99	50

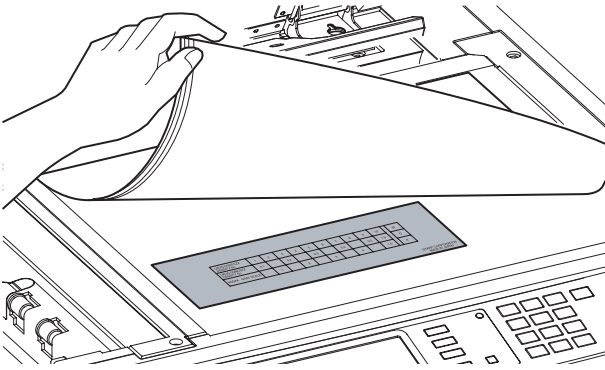
- 3) Select the adjustment item (FAX EXP. LEVEL) using the numeric keypad.
 - 4) Press the Start key.
 - 5) Press the Start key (A copy is created.)
Check the print density.
If the print density is not at an acceptable level, do the following steps.
 - 6) Enter the print adjustment value using the numeric keypad.
 - 7) Press the P or Start key
This applies the adjustment value.
Pressing the Start key starts print operation as well as applying the adjustment value.
 - 8) Check the print density.
- Repeat steps 6 to 8 until an acceptable print density is obtained.

Note: Adjusting the Fax print density through this simulation changes the print density settings for all Fax modes to the density level applied by carrying out this simulation.
The Fax mode print density settings for individual Fax modes adjusted through Simulations 46-13, -14, -15, -16 and -45 are changed to the print density level applied by this simulation.

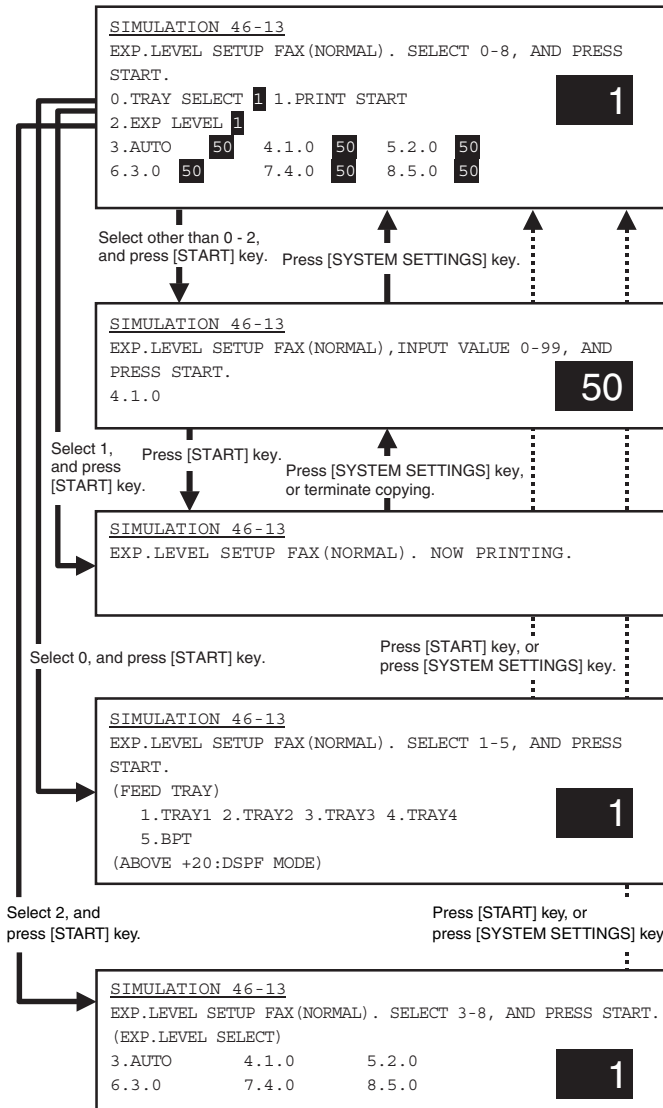
**b. Adjust the fax mode print density (standard mode/
small-character mode/super fine mode/600dpi mode)**

This adjustment is intended to be the print mode for each Fax mode individually. In manual mode, the print density setting for each print density adjustment level (1 to 5) can be adjusted to a custom density level.

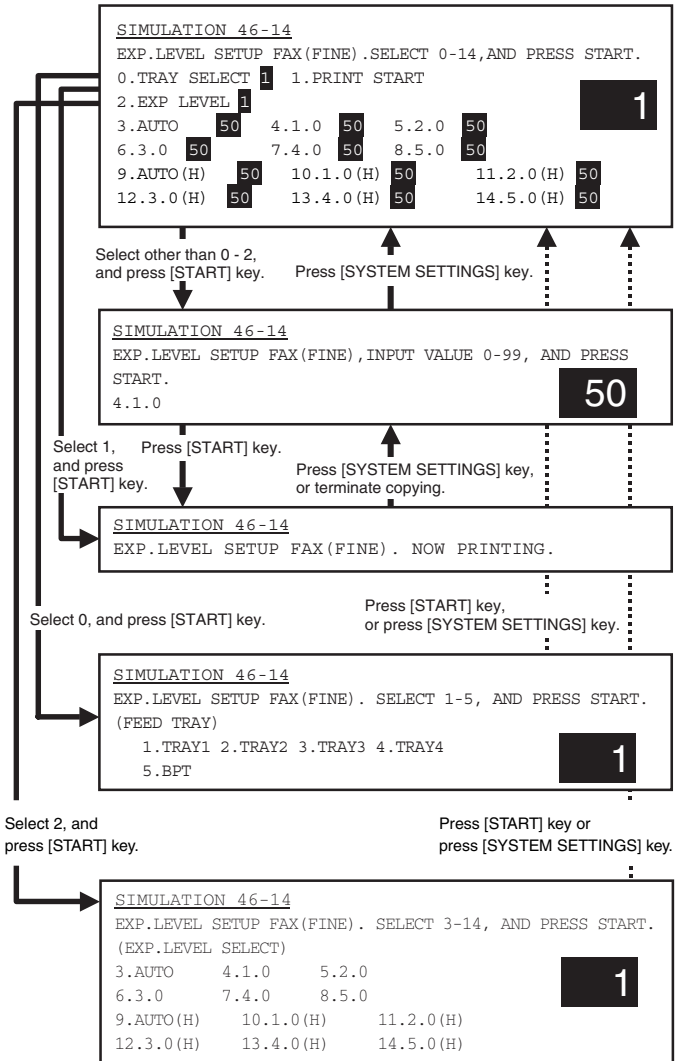
- 1) Set the test chart (UKOG-0162FCZZ) on the original table so that it aligns with the front frame. Then put four or five pieces of A3 (11" x 17") paper.



- 2) Go through the simulation modes that correspond to the Fax modes for which to adjust the print density (i.e., the modes specified in Simulations 46-13, -14, -15, -16, or -45).



	Item	Set range	Default
0	TRAY SELECT	Paper feed tray selection	—
1	PRINT START	Print start (Default)	—
2	EXP LEVEL	Exposure level selection	
3	AUTO	Auto	0 - 99
4	1.0	Exposure level 1	50
5	2.0	Exposure level 2	
6	3.0	Exposure level 3	
7	4.0	Exposure level 4	
8	5.0	Exposure level 5	



	Item		Set range	Default
0	TRAY SELECT	Paper feed tray selection	—	—
1	PRINT START	Print start (Default)		
2	EXP LEVEL	Exposure level selection	0 - 99	50
3	AUTO	Auto		
4	1.0	Exposure level 1		
5	2.0	Exposure level 2		
6	3.0	Exposure level 3		
7	4.0	Exposure level 4		
8	5.0	Exposure level 5		
9	AUTO (H)	Auto (Half-tone)		
10	1.0 (H)	Exposure level 1 (Half-tone)		
11	2.0 (H)	Exposure level 2 (Half-tone)		
12	3.0 (H)	Exposure level 3 (Half-tone)		
13	4.0 (H)	Exposure level 4 (Half-tone)		
14	5.0 (H)	Exposure level 5 (Half-tone)		

- 3) Using the numeric keypad, select the number that corresponds to the adjustment item. Choose from numbers 3 to 8 (14).

- Auto mode
- Manual mode (print density adjustment level)

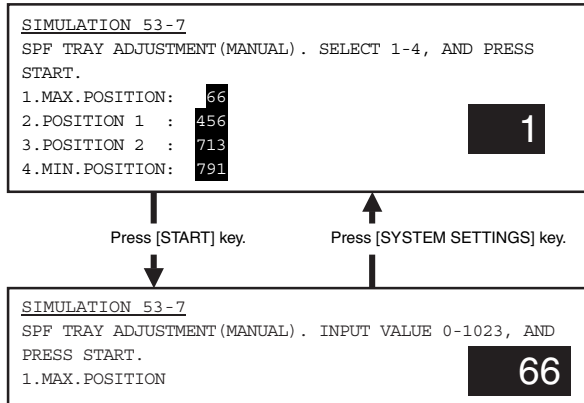
For manual mode, select the number that corresponds to the print density level (1 to 5). (Choose from numbers (4 to 8) (10-14)).

- 4) Press the Start key
5) Press the Start key. (A copy is created.)

I. DSPF width detection adjustment

(1) When replacing DSPF unit

- 1) Use SIM53-7 to enter the value indicated on the side of the right hinge of the DSPF unit.

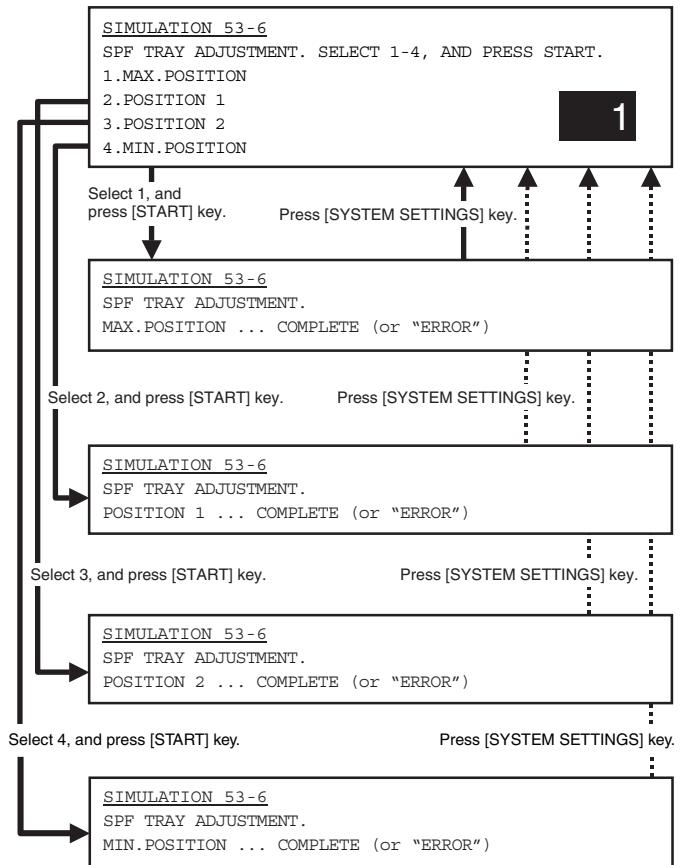


(2) When replacing the original width detection volume.

Execute SIM53-6 to perform the machine DSPF original tray size adjustment.

- 1) Extend the guide to MAX. position, select 1, and press START. When COMPLETE is displayed, press [SYSTEM SETTINGS] key to return to the initial screen.
- 2) Move the guide to A4R position, select 2, and press START. When COMPLETE is displayed, press [SYSTEM SETTINGS] key to return to the initial screen.
- 3) Move the guide to A5R position, select 3, and press START. When COMPLETE is displayed, press [SYSTEM SETTINGS] key to return to the initial screen.
- 4) Move the guide to MIN. position, select 4, and press START. When COMPLETE is displayed, the adjustment is completed.

If ERROR is displayed in procedures 1) - 4), repeat the adjustment again.



[9] SIMULATION

1. Outline and purpose

The simulation has the following functions to grasp the machine operating status, identify the trouble position and causes in an earlier stage, and make various setups and adjustments speedily for improving the serviceability of the machine.

- 1) Various adjustments
- 2) Setup of specifications and functions
- 3) Canceling troubles
- 4) Operation check
- 5) Various counters check, setup, and clear
- 6) Machine operating status (operation history) data check, clear
- 7) Transfer of various data (adjustments, setup, operations, counters)

The operating procedures and the displays differ depending on the form of the operation panel of the machine.

2. Code-type simulation

A. Operating procedures and operations

* Entering the simulation mode

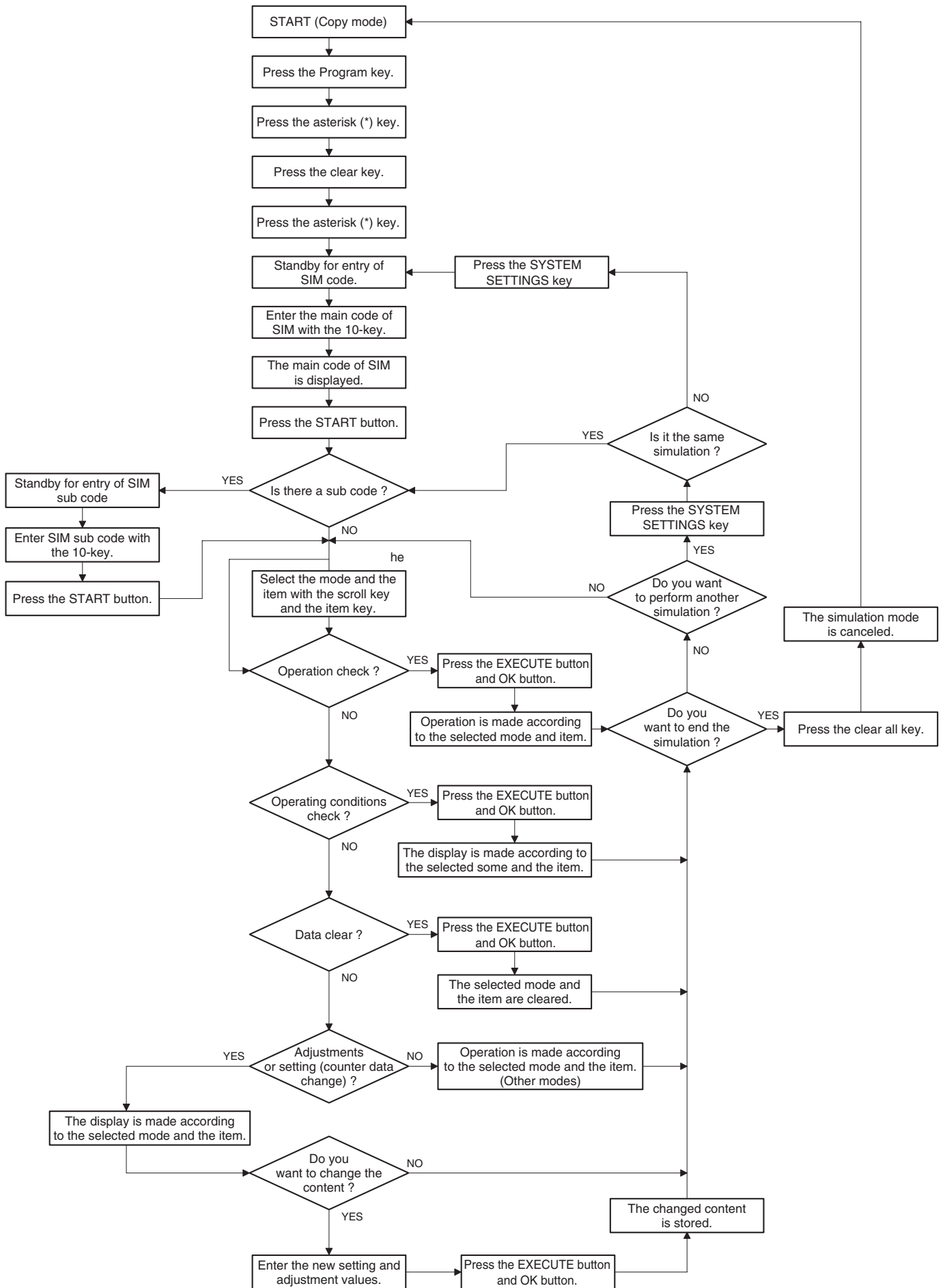
- 1) Copy mode key ON → Program key ON → Asterisk (*) key ON → CLEAR key ON → Asterisk (*) key ON → Ready for input of a main code of simulation
- 2) Entering a main code with the 10-key → START key ON
- 3) Entering a sub code with the 10-key → START key ON
- 4) Select an item with the scroll key and the item key.
- 5) The machine enters the mode corresponding to the selected item.

Press START key or EXECUTE key to start the simulation operation.

To cancel the current simulation mode or to change the main code and the sub code, press the SYSTEM SETTINGS key.

* Canceling the simulation mode to return to the normal mode

- 1) Press CA key.



B. Simulation list

(1) Main/ Sub

Code		Function (Purpose)
Main	Sub	
1	1	Used to check the operations of the scanner (read) unit and its control circuit.
	2	Used to check the operation of sensor and detector in the scanning (read) section and the related circuit.
2	1	Used to check the operations of the automatic document feeder unit and the control circuit.
	2	Used to check the operations of the sensors and detectors in the automatic document feeder unit and the related circuits.
	3	Used to check the operations of the loads in the automatic document feeder unit and the control circuits.
3	2	Used to check the operation of sensor and detector in the finisher and the related circuit.
	3	Used to check the operation of the load in the finisher and the control circuit.
	6	Used to adjust the stacking capacity of the finisher. (Used to adjust the alignment plate (jogger) stop position in the finisher paper width direction. The adjustment is made by changing the alignment plate home position in the paper width direction by software.)
	10	Console finisher adjustment
	20	Used to check the mail bin stacker sensor.
4	2	Used to check the operations of the sensors and detectors in the paper feed section (desk paper feed/large capacity tray) and the related circuit.
	3	Used to check the operations of the loads in the paper feed section (desk paper feed/large capacity tray) and the related circuit.
5	1	Used to check the operation of the display, LCD in the operation panel, and control circuit.
	2	Used to check the operation of the heater lamp and the control circuit.
	3	Used to check the operation of the scanner lamp and the control circuit.
6	1	Used to check the operation of the paper transport system loads and the control circuit.
	2	Used to check the operations of each fan motor and its control circuit.
7	1	Used to set the operating conditions of aging.
	6	Used to set the intermittent aging cycle.
	8	Used to set the warm-up time display YES/NO.
8	1	Used to check and adjust the operations of the developing voltage of each color and the control circuit.
	2	Used to check and adjust the operation of the main charger grid voltage in each printer mode and the control circuit.
	6	Used to check and adjust the operation of the transfer voltage and the control circuit.
	17	Used to check and adjust the operation of the transfer voltage and the related circuit. (Transfer belt cleaning mode)
9	1	Used to check and adjust the operation of the load (clutch/solenoid) in the duplex section and the control circuit.
	2	Used to check the operations of the sensors and detectors in the duplex section and its control circuit.

Code		Function (Purpose)
Main	Sub	
10	1	Used to check the operations of the toner motor and the related circuit.
13	0	Used to cancel the self-diag "U1" trouble. (Only when FAX is installed.)
14	0	Used to cancel excluding the self-diag U1/LCC/U2/PF troubles.
15	0	Used to cancel the self-diag "U6-01, 02, 03, F3-12, 22" (large capacity paper feed tray, paper feed trays 1, 2) troubles.
16	0	Used to cancel the self-diag U2 troubles.
17	0	Used to cancel the PF troubles (when the copy inhibit command from the host computer is received).
21	1	Used to set the maintenance cycle.
22	1	Used to check the print count value in each section and each operation mode. (Used to check the maintenance timing.)
	2	Used to check the total numbers of misfeed and troubles. (When the number of misfeed is considerably great, it is judged as necessary for repair. The misfeed rate is obtained by dividing this count value with the total counter value.)
	3	Used to check misfeed positions and the misfeed count of each position. (If the misfeed count is considerably great, it may be judged as necessary to repair.)
	4	Used to check the trouble (self diag) history.
	5	Used to check the ROM version of each unit (section).
	6	Used to output the list of the setting and adjustment data (simulations, FAX soft switch, counters).
	7	Used to display the key operator code. (This simulation is used when the customer forgets the key operator code.)
	8	Used to check the number of use of the finisher, the SPF, and the scan (reading) unit.
	9	Used to check the number of use (print quantity) of each paper feed section.
	10	Used to check the system configuration (option, internal hardware).
23	11	Used to check the use frequency (send/receive) of FAX. (Only when FAX is installed)
	12	Used to check the SPF misfeed positions and the number of misfeed at each position. (When the number of misfeed is considerably great, it can be judged as necessary for repair.)
	13	Used to check the operating time of the process section (OPC drum, DV unit, toner bottle).
	19	Used to check the values of the counters related to the scan mode and the Internet FAX mode.
	30	OSA vendor ID display (Application Communication Module)
	31	OSA vendor ID display (External account module)
	2	Used to check the trouble history of paper jam and misfeed. (If the number of misfeed and troubles is considerably great, it may be judged as necessary to repair.)
	80	Used to check the operations of the sensors and detectors in the paper feed and transport section.
24	1	Used to clear the misfeed counter, the misfeed history, the trouble counter, and the trouble history. (The counters are cleared after completion of maintenance.)
	2	Used to clear the number of use (the number of prints) of each paper feed section.

Code		Function (Purpose)
Main	Sub	
24	3	Used to clear the number of use of the finisher, SPF, and the scan (reading) unit.
	4	Used to reset the maintenance counter.
	5	Used to reset the developer counter. (The developer counter of the DV unit which is installed is reset.)
	6	Used to reset the copy counter.
	7	Used to clear the OPC drum counter. (Perform this simulation when the OPC drum is replaced.)
	9	Used clear the printer mode print counter and the self print mode print counter.
	10	Used to clear the FAX counter. (Only when FAX is installed)
	11	Used to reset the OPC drum rotation time, and the DV unit rotation time counter. The developer counter in the DV unit installed is reset.
25	15	Used to clear the counters related to the scan mode and the Internet FAX mode.
	1	Used to check the operations of the developing section (toner concentration, humidity and toner concentration sensor, humidity sensor, temperature sensor output can be monitored.)
26	2	Used to make the initial setting of toner concentration when replacing developer.
	3	Used to set the specifications of the auditor. Setting must be made according to the auditor use conditions.
	5	Used to set the count mode of the total counter and the maintenance counter.
	6	Used to set the specifications (paper, document detection, etc.) of the destination.
	10	Used to set the network scanner trial mode.
	18	Used to set YES/NO of toner save operation. (This function is valid only in Japan and UK versions. (Depends on the destination setting of SIM26-6.) For the other destinations, the same setting can be made by the user program P22.)
	30	Used to set the operation mode conforming to the CE mark (Europe safety standards). (Conforming to soft start when driving the fusing heater lamp.)
	35	Used to set whether the same continuous troubles are displayed as one trouble or the series of troubles with SIM 22-4 when the same troubles occur continuously.
	38	Used to set CONTINUE/STOP of printing when maintenance timing is over and the count value reaches 110% of replacement timing (life).
	41	Used to set the automatic magnification ratio selection (AMS) in the pamphlet mode.
	50	Black-White reverse YES/NO setting (Except for UK)
	52	Used to set whether non-print paper (insertion paper, cover paper) (blank image print paper) is counted up or not.
	68	Used to set ENABLE/DISABLE of the CA key cancel function of print stop.
27	1	Used to set the specifications for operations in case of communication trouble between the host computer and MODEM (machine side). (When communication trouble occurs between the host computer MODEM and the machine, the self diag display (U7-00) is printed and setting for inhibition of print or not is made.)
	5	Used to enter the machine tag No. (This function allows to check the tag No. of the machine with the host computer.)

Code		Function (Purpose)
Main	Sub	
30	1	Used to check the operation of sensors and detectors in other than the paper feed section and the operations of the related circuits.
	2	Used to check the operation of sensors and detectors in the paper feed section and the related circuits.
40	1	Used to check the operation of the manual feed tray paper size detector and the related circuit. (The operation of the manual feed tray paper size detector can be monitored with the LCD display.)
	2	Used to adjust the manual paper feed tray paper width detector detection level.
	7	Used to enter the manual paper feed tray paper width adjustment value.
	11	Used to check the multi-purpose tray width detection level.
	12	Used to adjust the multi-purpose tray width detection level.
41	1	Used to check the operation of the document size sensor and the related circuit. (The operation of the document size sensor can be monitored with the LCD display.)
	2	Used to adjust the document size sensor sensing level.
	3	Used to check the operation of the document size sensor and the related circuit. (The document size sensor output level can be monitored with the LCD display.)
43	1	Used to set the fusing temperature in each operation mode.
44	1	Used to set enable/disable of correction operations in the image forming (process) section.
	4	Used to set the target image (reference) density level in the developing bias voltage correction.
	9	Used to check the data related to the image forming section correction (process correction) result (corrected main charger grid voltage, the developing bias voltage, and the laser power voltage in each print mode). (This simulation allows to check that correction is performed normally or not.)
	14	Used to check the output level of the temperature sensor and the humidity sensor.
46	16	Used to check the toner concentration control data.
	2	Used to adjust the copy density in all the copy modes (Auto, Text, Text/Photo, and Photo mode).
	9	Used to adjust the print density for each density level (display value) in the copy mode (binary - Text mode). An optional print density can be set for each density level (display value).
	10	Used to adjust the print density for each density level (display value) in the copy mode (binary - Text/Photo mode). An optional print density can be set for each density level (display value).
	11	Used to adjust the print density for each density level (display value) in the copy mode (binary - Photo mode). An optional print density can be set for each density level (display value).
	12	Used to adjust the print density in the FAX mode (all modes).
	13	Used to adjust the print density in the FAX mode (each normal mode). (Only when FAX is installed.)
	14	Used to adjust the print density in the FAX mode (each fine mode). (Only when FAX is installed.)

Code		Function (Purpose)
Main	Sub	
46	15	Used to adjust the print density in the FAX mode (each super fine mode). (Only when FAX is installed.)
	16	Used to adjust the print density in the FAX mode (each ultra fine mode). (Only when FAX is installed.)
	17	Used to set the gain in shading correction.
	18	Used to adjust the gamma (density gradient) in the copy mode.
	19	Used to set the auto mode operation specifications in each mode (copy, scan, FAX).
	20	Used to adjust the copy density correction in the SPF copy mode for the document table copy mode. The adjustment is made so that the copy density becomes the same as that of the document table copy mode.
	21	Used to adjust the scanner exposure level in all the scanner modes.
	22	Used to adjust the scanner exposure level in the normal text mode.
	23	Used to adjust the scanner exposure level in the fine text mode.
	24	Used to adjust the scanner exposure level in the super fine text mode.
	25	Used to adjust the scanner exposure level in the ultra fine text mode.
	27	Used to adjust the gamma (density gradient) of the network scanner mode.
	31	Used to adjust sharpness of the copy mode.
	39	Used to adjust sharpness of the FAX mode.
	45	Used to adjust the image density in the FAX mode (600dpi).
	46	Used to adjust sharpness of the scanner mode.
48	1	Used to adjust the copy magnification ratio (in the main scanning and the sub scanning directions).
	5	Used to adjust the copy magnification ratio in the sub scanning direction.
	6	HSYNC cycle adjustment
49	1	Firmware updating
50	1	Used to adjust the copy image position and the void area (image loss) adjustment on print paper in the copy mode. (The similar adjustment can be performed with SIM 50-5 and 50-2 (Simplified method).) (Document table mode)
	2	Used to adjust the document scan position, the image print position, and the void area (image loss). (Simple adjustment) (This adjustment is the simple method of SIM 50-1.) (Document table mode)
	5	Used to adjust the print image position and the void area (image loss) on print paper. (Adjustment as the print engine) (This adjustment is reflected on all the FAX/printer/copy modes.)
	6	Used to adjust the copy image position and void area (image loss) on print paper in the copy mode. (The similar adjustment can be performed with SIM 50-7 (simple method).) (SPF mode)
	7	Used to adjust the copy image position and void area (image loss) on print paper in the copy mode. (The similar adjustment can be performed with SIM 50-6.) (SPF mode)
	10	Used to adjust the print image off-center position. (Adjusted separately for each paper feed section.)
	12	Used to adjust the scan image off-center position. (Adjusted separately for each scan mode.)
	27	Used to adjust the image loss of the scan image in the FAX/scan mode.

Code		Function (Purpose)
Main	Sub	
51	2	Used to adjust the contact pressure of paper on the resist roller of each section (each paper feed, duplex feed and SPF paper feed of the copier). (This adjustment is required when the print image position variations are considerably great or when paper jams occur frequently.)
53	6	Used to adjust the DSPF width detection level.
	7	Used to enter the SPF width detection adjustment value.
	8	Used to adjust the document scan start position. (Used to adjust the scanner scan position in the SPF mode front scan.)
55	1	Used to set the specifications of the engine control operations. (PCU PWB)
	2	Used to set the specifications of the scanner control operations. (Scanner control PWB)
	3	Used to set the specifications of the controller operations. (MFP control PWB)
56	1	Used to transfer the MFP controller data. (Used to repair the PWB.)
60	1	Used to check the MFP control (DRAM) operations (read/write).
61	1	Used to check the operation of the scanner (write) unit (LSU).
	2	Used to adjust the laser power (absolute value) in the copy mode.
	3	Used to adjust the laser power (absolute value) in the FAX mode.
	4	Used to adjust the laser power (absolute value) in the printer mode.
62	1	Used to format the hard disk. (Only in the model with a disk installed)
	2	Used to check the operation of the hard disk (read/write). (Only in the model with a disk installed) (Partial check)
	3	Used to check the operation of the hard disk (read/write). (Only in the model with a disk installed) (All areas check)
	6	Used to check the operations of the hard disk. (The self diag operation of the SMART function is executed.) (Only in the model with a disk installed)
	7	Used to check the operations of the hard disk. (The result of the self diag operation of the SMART function is printed out.) (Only in the model with a disk installed)
	8	Used to format the hard disk (the system area excluded). (Only in the model with a disk installed)
	9	Used to format the hard disk (the system area). (Only in the model with a disk installed)
	10	Used to delete a job complete list (also to delete job log data) (Only in the model with a disk installed)
	11	Used to delete document filing data. (The management area (standard folder, user folder) is cleared.) (Only in the model with a disk installed)
63	1	Used to check the result of shading correction. (The shading correction data are displayed.)
	2	Used to execute shading.
	7	Used to adjust the white plate scan start position for shading. (Document table mode)
64	1	Used to check the operation of the printer section (self-print operation), (The print pattern, the paper feed mode, the print mode, the print quantity, and the density can be optionally set.)

Code		Function (Purpose)
Main	Sub	
65	1	Used to adjust the touch panel (LCD display section) detection position.
	2	Used to check the result of the touch panel (LCD display) detection position adjustment. (The coordinates are displayed.)
66	1	Used to change and check the FAX soft switch functions. (Used to change and check the functions provided for the FAX soft switches.) (Only when FAX is installed)
	2	Used to clear the FAX soft switch function data and to set to the default. (Excluding the adjustment values.) (Only when FAX is installed)
	3	Used to check the operation of the FAX PWB memory (read/write). (This adjustment is required when the PWB is replaced with a new one.) (Only when FAX is installed)
	4	Used to check the output operation of data signals in each data output mode of FAX. (Used to check the operation of MODEM.) Send level: Max. (Only when FAX is installed)
	5	Used to check the output operation of data signals in each data output mode of FAX. (Used to check the operation of MODEM.) An output is sent at the send level set by the soft switch. (Only when FAX is installed)
	6	Used to print the confidential pass code. (Used when the confidential pass code is forgotten.) (Only when FAX is installed)
	7	Used to print the image memory data (memory send/receive). (Only when FAX is installed)
	8	Used to check the output operation of various sound signals of FAX. (Used to check the operation of the sound output IC.) Send level: Max. (Only when FAX is installed)
	9	Used to check the output operation of various sound signals of FAX. (Used to check the operation of the sound output IC.) An output is sent at the send level set by the soft switch. (Only when FAX is installed)
	10	Used to clear all data of the image memory (memory send/receive). The confidential data are also cleared at the same time. (Only when FAX is installed)
	11	Used to check the output operation of FAX G3 mode 300bps. (Used to check the operation of MODEM.) Send level: Max. (Only when FAX is installed)
	12	Used to check the output operation of FAX G3 mode 300bps. (Used to check the operation of MODEM.) An output is send at the send level set by the soft switch. (Only when FAX is installed)
	13	Used to enter (set) the number of FAX dial signal output test. (The dial number set by this simulation is outputted when the dial signal output test is made by SIM 66-14 - 16.) (Only when FAX is installed)
	14	Used to set the make time in the FAX pulse dial mode (10pps) and to test the dial signal output. (The dial number signal set by SIM 66-13 is outputted.) Used to check troubles in dialing and to check the operation. (Only when FAX is installed)
	15	Used to set the make time in the FAX pulse dial mode (20pps) and to test the dial signal output. (The dial number signal set by SIM 66-13 is outputted.) Used to check troubles in dialing and to check the operation. (Only when FAX is installed)

Code		Function (Purpose)
Main	Sub	
66	16	Used to check the dial signal (DTMF) output in the FAX tone dial mode. (The dial number signal set by SIM 66-13 is outputted.) The send level can be set to an optional level. Used to check troubles in dialing and to check the operation. (Only when FAX is installed)
	17	Used to check the dial signal (DTMF) output in the FAX tone dial mode. Send level: Max. Used to check the operation. (Only when FAX is installed)
	18	Used to check the dial signal (DTMF) output in the FAX tone dial mode. An output is sent at the send level set by the soft switch. Used to check the operation. (Only when FAX is installed)
	19	Used to back-up the HDD data into the Flash memory (optional FAX expansion memory: AR-MM9). (Only when FAX is installed)
	20	Used to read the back-up data by SIM 66-19 to the SRAM/HDD. (Only when FAX is installed)
	21	Used to print information related to FAX (various registrations, communication management, file management, system error protocol). (Only when FAX is installed)
	22	Used to adjust the handset volume. (Only when the FAX is installed.)
	23	Used to download the FAX program. (Only when FAX is installed) Not used in the market. (For development)
	24	Used to clear the FAST memory data. (Only when FAX is installed)
	25	Used to register the FAX number for Modem dial-in. (Only when FAX is installed) Not used in the market. (For development)
	26	Used to register external telephone numbers for Modem dial-in. (Only when FAX is installed) Not used in the market. (For development)
	27	Used to register the transfer number for voice warp. (Only when FAX is installed) Not used in the market. (For development)
	29	Used to clear data related to an address book (one-touch registration, program registration/ expansion, relay memory box registration, each table content).
	30	Used to check the change in the TEL/LIU status. (Only when FAX is installed)
	31	Used to check the relay operation. (Only when FAX is installed)
	32	Used to check the receive data (fixed data) from the line. (Only when FAX is installed)
	33	Used to check the signal (BUSY TONE/CNG/CED/ FNET/DTMF) detection. (Only when FAX is installed)
	34	Used to measure the communication time of test image data. (Only when FAX is installed)
	35	Modem program rewriting. (Only when FAX is installed) Not used in the market. (For development)
	36	Used to check interface between MFPC controller and MDMC. (Check of the data line or the command line) (Only when FAX is installed)
	39	Used to set the destination specifications. (Only when FAX is installed)
	42	PIC program rewriting (Only when FAX is installed)
	43	PIC adjustment value writing (Only when FAX is installed)
67	16	Used to check the operation of the network card.

C. Details

1

1-1

Purpose	Operation test/Check
Function (Purpose)	Used to check the operations of the scanner (read) unit and its control circuit.
Section	Optical (Image scanning)
Item	Operation

Operation/Procedure

- 1) Select the operation mode with 10-key.
- 2) Press START key.
The scanner performs scanning at the speed corresponding to the operation mode.

1	TOP SPEED	Top speed (220mm/s)
2	HIGH SPEED	High speed (168.7mm/s)
3	MIDDLE SPEED	Middle speed (110mm/s)
4	LOW SPEED	Low speed (55mm/s)

SIMULATION 1-1
SCANNER CHECK. SELECT 1-4, AND PRESS START.
1. TOP SPEED
2. HIGH SPEED
3. MIDDLE SPEED
4. LOW SPEED

Press [START] key, and the operation is started.

Press [SYSTEM SETTINGS] key, and scanning is stopped.

SIMULATION 1-1
SCANNER CHECK. EXECUTING...
1. TOP SPEED
2. HIGH SPEED
3. MIDDLE SPEED
4. LOW SPEED

1-2

Purpose	Operation test/Check
Function (Purpose)	Used to check the operation of sensor and detector in the scanning (read) section and the related circuit.
Section	Optical (Image scanning)
Item	Operation

Operation/Procedure

The sensor and detector operation conditions are displayed.
The active sensors and detectors are highlighted.

- The scanner (read) unit is in the home position.: "MHPS" section is highlighted.
- The scanner (read) unit is not in the home position.: "MHPS" is normally displayed.

MHPS	Optical system home position
------	------------------------------

SIMULATION 1-2
SCANNER SENSOR CHECK..
MHPS

2

2-1

Purpose	Operation test/Check
Function (Purpose)	Used to check the operations of the automatic document feeder unit and the control circuit.
Section	DSPF
Item	Operation

Operation/Procedure

- 1) Select the operation mode with 10-key.
- 2) Press START key.
The SPF repeat paper feed, transport, and paper exit at the speed corresponding to the operation mode.
The operation can be stopped by [SYSTEM SETTINGS] key.

1	HIGH SPEED	High speed
2	LOW SPEED	Low speed

SIMULATION 2-1
SPF AGING TEST. SELECT 1-2, AND PRESS START.
1. HIGH SPEED
2. LOW SPEED

Press [START] key, and the operation is started.

Press [SYSTEM SETTINGS] key, and the operation is stopped.

SIMULATION 2-1
SPF AGING TEST. EXECUTING...
1. HIGH SPEED
2. LOW SPEED

2-2

Purpose	Operation test/Check
Function (Purpose)	Used to check the operations of the sensors and detectors in the automatic document feeder unit and the related circuits.
Section	DSPF
Item	Operation

Operation/Procedure

The operating conditions of the sensors and detectors are displayed.

The active sensors and detectors are highlighted.

SPFSET	SPF sensor
SOCD	Open/close sensor
SCOV	Paper feed cover sensor
SPED	Document set sensor
SPPD	Resist front detection sensor
SPOD	Document paper exit sensor
SWDn	Document width sensor (n → 1 (inside) - 6 (outside))
SPLSn	Document length sensor (n → 1 (inside) - 2 (outside))
CISSET	CIS installation detection
STSET	Stamp unit installation sensor
SWD_LEN	SPF guide plate position (unit: 0.1mm)
SWD_AD	SPF document width detection volume output AD value

SIMULATION 2-2			
SPF SENSOR CHECK.			
SPFSET	SODC	SCOV	SPED
SPPD	SPOD	SWD6	SWD5
SWD4	SWD3	SWD2	SWD1
SPLS2	SPLS1	CISSET	STSET
SWD_LEN:	2100	SWD_AD:	600

2-3

Purpose	Operation test/Check
Function (Purpose)	Used to check the operations of the loads in the automatic document feeder unit and the control circuits.
Section	DSPF
Item	Operation

Operation/Procedure

- 1) Select the number corresponding to the target of operation check with 10-key.
- 2) Press START key.

The load selected in procedure 1 is operated.

Press [SYSTEM SETTINGS] key to stop the operation of the load.

1	MOTOR(H)	Motor high speed
2	MOTOR(L)	Motor low speed
3	SDSS	SPF gate solenoid
4	SPFS	SPF pick-up solenoid
5	SPFC	SPF paper feed clutch
6	SRRC	SPF resist roller clutch
7	STMPS	Stamp solenoid

SIMULATION 2-3			
SPF LOAD TEST. SELECT 1-7, AND PRESS START.			
1.MOTOR (H)	2.MOTOR (L)		
3.SDSS	4.SPFS	5.SPFC	6.SRRC
7.STMPS			

Press [START] key, and the operation is started.

Press [SYSTEM SETTINGS] key, and the operation is stopped.

SIMULATION 2-3			
SPF LOAD TEST. EXECUTING...			
1.MOTOR (H)	2.MOTOR (L)		
3.SDSS	4.SPFS	5.SPFC	6.SRRC
7.STMPS			

3

3-2

Purpose	Operation test/Check
Function (Purpose)	Used to check the operation of sensor and detector in the finisher and the related circuit.
Section	Finisher
Item	Operation

Operation/Procedure

The operating conditions of the sensors and detectors are displayed.

The active sensors and detectors are highlighted.

Built-in finisher	
STHP	Stapler HP detection
POD	Tray 2 paper exit detection
SCID	Staple compiler paper entry detection
PID	Paper entry detection
T2PD	Tray 2 paper empty detection
T2DN	Tray 2 lower limit detection
T2UP	Tray 2 upper limit detection
JRHP	Jogger R HP
JFHP	Jogger (F) HP
SCID2	Staple compiler paper entry detection 2
STTHP2	Staple rotation HP detection 2
STTHP1	Staple rotation HP detection 1
STUHP	Staple shift HP detection
PSHP	Pusher HP detection
PPD	Paper hold return detection
DSW2	Staple replacement door open detection
DSW1	Compiler jam cancel door open detection
24VM	24V power supply
T1PF	Tray 1 full detection
STSP	Stapling ready detection
STLS	Cartridge inside spare staple empty detection
STNC	Cartridge empty detection
DOPD	Interface unit door open detection
MMLK	Main drive motor lock detection
SCPD	Staple compiler paper empty detection
Console finisher	
FSSS	Stapler safety switch
FJS	Joint switch
FFDSW	Front door switch
FTCS	Upper cover sensor
FFDS	Front door sensor
FSPS	Self prime sensor
FSUC	Stapler connection detection
FSS	Staple sensor
FSTHPS	Stapler HP sensor
FSHPS	Slide HP sensor
FLE	Lift lock sensor
FLLS	Lift lower limit sensor
FULS	Lift upper limit sensor
FFE	Bookbinding clock sensor
FFES	Bookbinding paper sensor
FFRHPS	Bookbinding roller HP sensor
FFHPS	Bookbinding HP sensor
FFPS	Bookbinding position sensor
FSLS	Paper surface sensor
FBES	Tray paper sensor
FOBHPS	Paper exit belt HP sensor
FAS	Alignment tray sensor
FRJHPS	Alignment HP sensor R
FFJHPS	Alignment HP sensor F
FARHPS	Bundle roller HP sensor
FPHPS	Paddle HP sensor
FES	Entry port sensor

- The following units are added when the punch unit is installed to the console finisher:

FPE	Punch motor encoder
FPSHPS	Punch side register HP
FPUC	Punch connection detection
FPDS	Punch dust sensor
FPDSS4	Punch side register sensor 4
FPDSS3	Punch side register sensor 3
FPDSS2	Punch side register sensor 2
FPDSS1	Punch side register sensor 1
FPTS	Punch timing sensor

(Built-in finisher)

SIMULATION 3-3			
FINISHER SENSOR CHECK.			
PID	SCID	SCID2	PPD
SCPD	POD	T1PF	T2UP
T2DN	T2PD	STSP	STLS
STNC	STHP	JFHP	JRHP
PSHP	STUHP	STTHP1	
STTHP2	DOPD	DSW1	DSW2
24VM	MMLK		

(Console finisher)

SIMULATION 3-2			
FINISHER SENSOR CHECK.			
FSSS	FJS	FFDSW	FTCS
FSSS	FSUC	FSS	FSTHPS
FULS	FFE	FFES	FFRHP
FBES	FOBHP	FAS	FRJHP
FES			
(FPE)	(FPHPS)	(FPUC)	(FPDS)
(FPDSS4)	(FPDSS3)	(FPDSS2)	(FPDSS1)
(FPTS)			

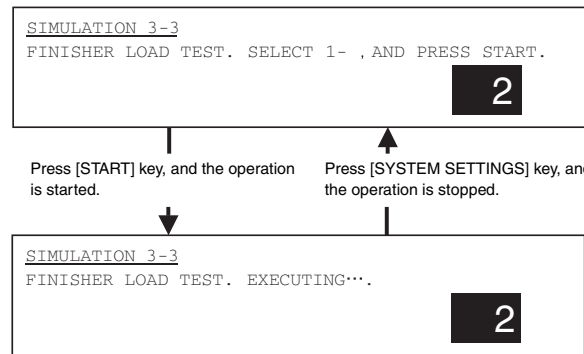
() : Added when the punch unit is installed.

3-3	
Purpose	Operation test/Check
Function (Purpose)	Used to check the operation of the load in the finisher and the control circuit.
Section	Finisher
Item	Operation

Operation/Procedure

- 1) Select the number corresponding to the target of operation check with 10-key.
- 2) Press START key.
The load selected in procedure 1 is operated.
Press [SYSTEM SETTINGS] key to stop the operation of the load.

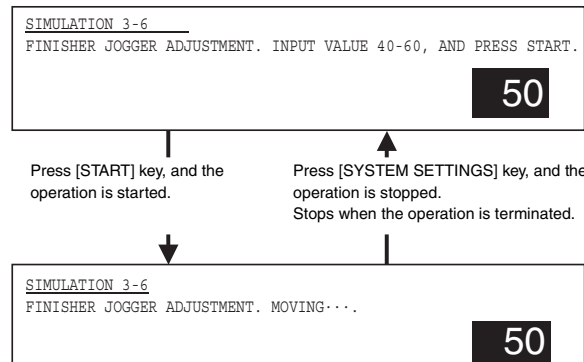
Built-in finisher		
1	T2S	Tray 2 solenoid
2	T2OM	Paper exit motor
3	SPS	Stopper solenoid
4	SCRS	Roller pressure release solenoid
5	PPS	Rear edge h folding solenoid
6	SCGS	Compiler gate solenoid
7	STTM	Staple rotation motor
8	STUM	Stapler shift motor
9	MM	Main drive motor
10	EVM	Elevator motor
11	STM	Staple motor
12	JRM	Jogger motor rear
13	JFM	Jogger motor front
14	PSM	Pusher motor
Console finisher		
1	FFC	Folding clutch
2	FPSM	Puncher side register motor
3	FPNM	Punch motor
4	FLM	Shift motor
5	FFSM	Stapler motor
6	FSM	Slide motor
7	FRJM	Alignment motor R
8	FFJM	Alignment motor F
9	FAM	Bundle exit motor
10	FPM	Paddle motor
11	FFM	Transport motor



3-6	
Purpose	Adjustment
Function (Purpose)	Used to adjust the stacking capacity of the finisher. (Used to adjust the alignment plate (jogger) stop position in the finisher paper width direction. The adjustment is made by changing the alignment plate home position in the paper width direction by software.)
Section	Finisher
Item	Operation

Operation/Procedure

Enter the adjustment value with 10 digit key pad and press START key. The jogger moves to LT position (Inch series) or A4 position (AB series) according to the entered value, and stops there.



3-10	
Purpose	Adjustment
Function (Purpose)	Console finisher adjustment
Section	Finisher
Item	Operation

Operation/Procedure

- 1) Select the number corresponding to the target of operation check with 10-key.
- 2) Press [START] key.
- 3) Enter the adjustment value with 10-key.
- 4) Press [START] key. (The entered value is stored.)

	Item	Set range	Initial value	1STEP
1	Saddle binding position adjustment	0 - 400	200	0.0707mm
2	Saddle folding position adjustment	0 - 400	200	0.0525mm
3	Front alignment position adjustment	0 - 20	10	0.367mm
4	Rear alignment position adjustment	0 - 20	10	0.367mm

	Item	Set range	Initial value	1STEP
5	Staple rear one-position binding position adjustment	0 - 200	100	0.04374mm
6	Staple front one-position binding position adjustment	0 - 200	100	0.04374mm
7	Staple 2-position binding center adjustment	0 - 200	100	0.04374mm
8	Staple 2-position binding pitch adjustment	0 - 99	50	0.04374mm
9	Punch center adjustment (Slide direction)	47 - 53	50	1mm
10	Punch hole position adjustment (Paper feed direction)	0 - 99	50	0.105mm

SIMULATION 3-10

CONSOLE FINISHER SETTING. SELECT 1-10, AND PRESS START.
 1. SADDLE POSITION 2. FOLDING POSITION
 3. FRONT ADJUST
 4. REAR ADJUST 5. STAPLE REAR
 6. STAPLE FRONT 7. STAPLE BOTH
 8. STAPLE PITCH 9. PUNCH CENTER
 10. PUNCH HOLE

1

Press [START] key, and the operation is started.

Press [SYSTEM SETTINGS] key, and the operation is stopped.

SIMULATION 3-10

CONSOLE FINISHER SETTING. INPUT VALUE, AND PRESS START.
 1. SADDLE POSITION

200

3-20

Purpose	Operation test/Check
Function (Purpose)	Used to check the mail bin stacker sensor.
Section	Mail bin stacker
Item	Operation

Operation/Procedure

The operating conditions of the sensors and detectors are displayed.

The active sensors and detectors are highlighted.

MPFD1	Tray 1 paper full detection
MPFD2	Tray 2 paper full detection
MPFD3	Tray 3 paper full detection
MPFD4	Tray 4 paper full detection
MPFD5	Tray 5 paper full detection
MPFD6	Tray 6 paper full detection
MPFD7	Tray 7 paper full detection
MPFD8	Tray 8 paper full detection
MPID	Interface unit paper entry detection
MPPD1	Paper transport sensor 1
MPPD2	Paper transport sensor 2
MPPD3	Paper transport sensor 3
MPPD4	Paper transport sensor 4
MPPD5	Paper transport sensor 5
M24VM	24V power supply
MDD1	Jam cancel door
MDOPD	Interface unit door

SIMULATION 3-20

MAIL BOX SENSOR CHECK.

MPFD1 MPFD2 MPFD3 MPFD4 MPFD5 MPFD6 MPFD7
 MPFD8 MPID MPPD1 MPPD2 MPPD3 MPPD4 MPPD5
 M24VM MDD1 MDOPD

3-21

Purpose	Operation test/Check
Function (Purpose)	Used to check the operations of the mail bin stacker loads.
Section	Mail bin stacker
Item	Operation

Operation/Procedure

1) Select the number corresponding to the target of operation check with 10-key.

2) Press [START] key.

The load selected in procedure 1 is operated.

Press [SYSTEM SETTINGS] key to stop the operation of the load.

1	MM	Main motor
2	GSOL1	Gate solenoid 1
3	GSOL2	Gate solenoid 2
4	GSOL3	Gate solenoid 3
5	GSOL4	Gate solenoid 4
6	GSOL5	Gate solenoid 5
7	GSOL6	Gate solenoid 6
8	GSOL7	Gate solenoid 7

SIMULATION 3-21

MAIL BOX LOAD TEST. SELECT 1-8 AND PRESS START.

1. MM
 2. GSOL1
 3. GSOL2
 4. GSOL3
 5. GSOL4
 6. GSOL5
 7. GSOL6
 8. GSOL7

2

Press [START] key, and the operation is started.

Press [SYSTEM SETTINGS] key, and the operation is stopped.

SIMULATION 3-21

MAIL BOX LOAD TEST. EXECUTING...

1. MM
 2. GSOL1
 3. GSOL2
 4. GSOL3
 5. GSOL4
 6. GSOL5
 7. GSOL6
 8. GSOL7

2

4

4-2

Purpose	Operation test/Check
Function (Purpose)	Used to check the operations of the sensors and detectors in the paper feed section (desk paper feed/large capacity tray) and the related circuit.
Section	Paper feed
Item	Operation

Operation/Procedure

The operating conditions of the sensors and detectors are displayed.

The active sensors and detectors are highlighted.

<Desk>

DDRS	Desk door sensor
DSPD2	Desk cassette 2 remaining paper quantity sensor
DSPD1	Desk cassette 1 remaining paper quantity sensor
DCSS24	Desk cassette 2 paper rear edge sensor 4
DCSS23	Desk cassette 2 paper rear edge sensor 3
DCSS22	Desk cassette 2 paper rear edge sensor 2
DCSS21	Desk cassette 2 paper rear edge sensor 1
DLUD2	Desk cassette 2 upper limit sensor
DPED2	Desk cassette 2 paper sensor
DPFD3	Desk paper transport sensor 3
DCSS14	Desk cassette 1 paper rear edge sensor 4
DCSS13	Desk cassette 1 paper rear edge sensor 3
DCSS12	Desk cassette 1 paper rear edge sensor 2
DCSS11	Desk cassette 1 paper rear edge sensor 1
DLUD1	Desk cassette 1 upper limit sensor
DPED1	Desk cassette 1 paper sensor
DPFD2	Desk paper transport sensor 2
MCSS4	MP tray size detection 4
MCSS3	MP tray size detection 3
MCSS2	MP tray size detection 2
MCSS1	MP tray size detection 1
MCSPD	MP tray remaining quantity detection
MCLUD	MP tray upper limit detection
MCPED	MP tray paper empty detection
DPFD1	MP tray transport detection

SIMULATION 4-2

DESK	SENSOR	CHECK.		
DDRS		DPFD1	DPFD2	DPFD3
MCLUD		DLUD1	DLUD2	MCSPD
DSPD1		DSPD2	MCPED	DPED1
DPED2		MCSS1	MCSS2	MCSS3
MCSS4		DCSS11	DCSS12	DCSS13
DCSS14			DCSS21	DCSS22
DCSS23		DCSS24		

<LCC>

TDRS	Tandem side door sensor
TTSD	Tandem tray sensor
TLUD2	Tandem tray 2 upper limit sensor
TLUD1	Tandem tray 1 upper limit sensor
TSPD2	Tandem tray 2 remaining quantity sensor
TSPD1	Tandem tray 1 remaining quantity sensor
TPED2	Tandem tray 2 paper sensor
TPED1	Tandem tray 1 paper sensors
TPFD3	Tandem paper transport sensor 3
TPFD2	Tandem paper transport sensor 2
MCSS4	MP tray size detection 4
MCSS3	MP tray size detection 3
MCSS2	MP tray size detection 23
MCSS1	MP tray size detection 1
MCSPD	MP tray remaining quantity detection
MCLUD	MP tray upper limit detection
MCPED	MP tray paper empty detection
TPFD1	MP tray transport detection

SIMULATION 4-2

LCC	SENSOR	CHECK.		
TDRS		TTSD	TPFD1	TPFD2
TPFD3		MCLUD	TLUD1	TLUD2
MCSPD		TSPD1	TSPD2	MCPED
TPED1		TPED2	MCSS1	MCSS2
MCSS3		MCSS4		

4-3

Purpose	Operation test/Check
Function (Purpose)	Used to check the operations of the loads in the paper feed section (desk paper feed/large capacity tray) and the related circuit.
Section	Paper feed
Item	Operation

Operation/Procedure

1. Select the number corresponding to the target of operation check with 10-key.
 2. Press [START] key.
- The load selected in procedure 1 is operated.
- Press [SYSTEM SETTINGS] key to stop the operation of the load.

<Desk>

1	DLUM2	Desk lift-up motor 2
2	DLUM1	Desk lift-up motor 1
3	MCLUM	Desk multi lift-up motor
4	DPFCL	Desk paper transport clutch
5	DPCL2	Desk paper feed clutch 2
6	DPCL1	Desk paper feed clutch 1
7	MCPCL	Desk multi paper feed clutch
8	DMM	Desk transport motor

<LCC>

1	TLUM2	LCC lift-up motor 2
2	TLUM1	LCC lift-up motor 1
3	MCLUM	LCC multi lift-up motor
4	TPFCL	LCC transport clutch
5	TPCL2	LCC paper feed clutch 2
6	TPCL1	LCC paper feed clutch 1
7	MCPCL	LCC multi paper feed clutch
8	TMM	LCC transport motor

SIMULATION 4-3

LCC LOAD TEST. SELECT 1- , AND PRESS START.

1.

2

Press [START] key, and the operation is started.

Press [SYSTEM SETTINGS] key, and the operation is stopped.

SIMULATION 4-3

LCC LOAD TEST. EXECUTING . . .

1.

2

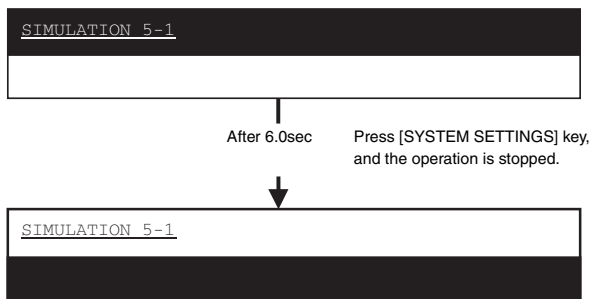
5

5-1

Purpose	Operation test/Check
Function (Purpose)	Used to check the operation of the display, LCD in the operation panel, and control circuit.
Section	Operation (Display/Operation key)
Item	Operation

Operation/Procedure

The LCD is changed as shown below. (The contrast changes every 2sec from the current level to MAX → MIN → the current level. During this period, each LED is lighted.



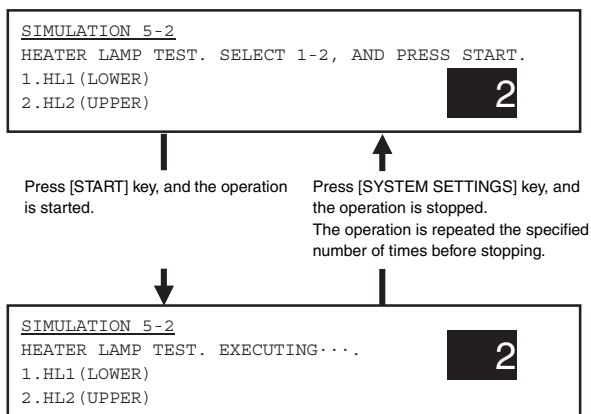
5-2

Purpose	Operation test/Check
Function (Purpose)	Used to check the operation of the heater lamp and the control circuit.
Section	Fixing (Fusing)
Item	Operation

Operation/Procedure

- 1) Select the number corresponding to the target of operation check with 10-key.
- 2) Press [START] key.
The load selected in procedure 1 performs ON/OFF operation. Press [SYSTEM SETTINGS] key to stop the operation of the load.
The ON/OFF operation of the selected heater lamp is repeated every 500ms five times.

1	HL1 (LOWER)	Heater lamp 1 (Lower)
2	HL2 (UPPER)	Heater lamp 2 (Upper)

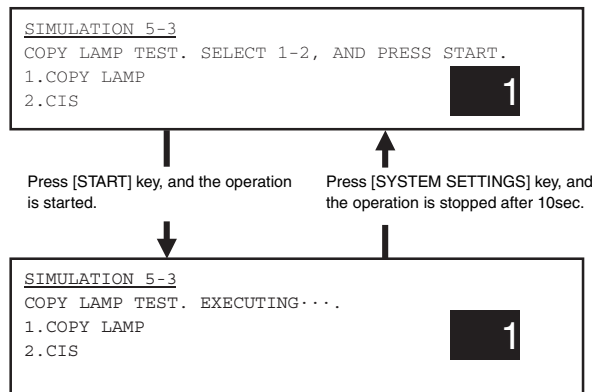


5-3

Purpose	Operation test/Check
Function (Purpose)	Used to check the operation of the scanner lamp and the control circuit.
Section	Optical (Image scanning)
Item	Operation

Operation/Procedure

- 1) Select the number corresponding to the target of operation check with 10-key.
- 2) Press [START] key.
The load selected in procedure 1 turns ON for 10sec. Press [SYSTEM SETTINGS] key to stop the operation.
The copy lamp or CIS is turned on for 10sec and turned off.
NOTE: CIS: only when the DSPF is installed.



6

6-1

Purpose	Operation test/Check
Function (Purpose)	Used to check the operation of the paper transport system loads and the control circuit.
Section	Paper transport (Discharge/Switchback/Transport)
Item	Operation

Operation/Procedure

- 1) Select the number corresponding to the target of operation check with 10-key.
- 2) Press [START] key.
The load selected in procedure 1 operates. Press [SYSTEM SETTINGS] key to stop the operation.

1	MSWPR	MSW power relay signal
2	HLPR	Heater power relay
3	DCPR	DC power relay
4	MM	Main motor
5	DM	Drum motor
6	POM_FW	Paper exit motor forward rotation
7	POM_RV	Paper exit motor reverse rotation
8	CPFC	Paper feed clutch
9	RRC	Resist roller clutch
10	TRC	Transport roller clutch
11	FGS_FIN	Finisher gate solenoid
12	LUM	Tray 1 lift-up motor
13	TRC_DSK	Desk clutch sync signal
14	PSPS	Separation pawl solenoid
15*1	MCM	MP drive motor control signal
16*1	MCPCL	MP tray paper feed clutch signal
17*1	MCFCL	MP tray transport clutch signal

7-6

Purpose	Setting
Function (Purpose)	Used to set the intermittent aging cycle.
Section	
Item	Operation

Operation/Procedure

- 1) Enter the intermittent aging cycle (unit: sec) with 10-key.
- 2) Press [START] key.

The time entered in procedure 1) is set.

* Set range of interval time: 1 - 999 (sec)

Set the intermittent aging mode cycle of 7-1 with 10-key. (Unit: sec)

SIMULATION 7-6
INTERVAL AGING CYCLE SETUP. INPUT TIME AND PRESS START.
(1-999, UNIT: sec)

10

7-8

Purpose	Setting
Function (Purpose)	Used to set the warm-up time display YES/NO.
Item	Operation

Operation/Procedure

- 1) Select the number corresponding to the warm-up time display YES/NO.
- 2) Press [START] key, and the number selected in procedure 1) is set.

* The setting of this simulation is kept valid until the power is turned off.

The warm-up time is displayed in the unit of second.

SIMULATION 7-8
WARM UP TIME DISPLAY.
ARE YOU SURE?
1. YES
2. NO

1

Press [START] key,
and time count is started.

Press [SYSTEM SETTINGS] key,
and time count is stopped.

SIMULATION 7-8
WARM UP TIME DISPLAY. WARMING UP, PLEASE WAIT.
(UNIT:sec)

30

Warm-up is completed.

Press [SYSTEM SETTINGS] key.

SIMULATION 7-8
WARM UP TIME DISPLAY. WARM UP COMPLETED.
(UNIT:sec)

60

8

8-1

Purpose	Adjustment/Operation test/Check
Function (Purpose)	Used to check and adjust the operations of the developing voltage of each color and the control circuit.
Section	Image process (Photoconductor/Developing/Transfer/Cleaning)

Operation/Procedure

- 1) Enter the number corresponding to the adjustment item with 10-key.
- 2) Press [START] key.
- 3) Enter the adjustment value with 10-key.
- 4) Press [START] key.

(The set value is stored, and the output corresponding to the set value is outputted for 30sec.)

Press [SYSTEM SETTINGS] key to stop the operation.

(The developing bias output voltage adjustment and output check can be made in each print mode.)

Item			Set range		Default	
					MX-M350	MX-M450
1	AUTO	Auto mode	0 - 745		455	485
2	CHARACTER	Text mode			485	485
3	MIX	Text/Photo mode				
4	PHOTO	Photo mode				
5	PRINTER	Printer mode				
6	FAX	FAX mode	0 - 255		150	150
7	PLUS	Reverse developing bias voltage				

SIMULATION 8-1
DV BIAS SETTING. SELECT 1-7, AND PRESS START.
1.AUTO 485 2.CHARACTER 485
3.MIX 485 4.PHOTO 485
5.PRINTER 485 6.FAX 485 7.PLUS 150

1

Press [START] key.

Press [SYSTEM SETTINGS] key.

SIMULATION 8-1
DV BIAS SETTING. INPUT VALUE, AND PRESS START.
1:AUTO (0-745)

485

Press [START] key.

Press [SYSTEM SETTINGS] key.
Or after 30sec output.

SIMULATION 8-1
DV BIAS SETTING. EXECUTING...
1:AUTO

485

Purpose	Adjustment/Operation test/Check
Function (Purpose)	Used to check and adjust the operation of the main charger grid voltage in each printer mode and the control circuit.
Section	Image process (Photoconductor/Developing/Transfer/Cleaning)

Operation/Procedure

- 1) Enter the number corresponding to the adjustment item with 10-key.
- 2) Press [START] key.
- 3) Enter the adjustment value with 10-key.
- 4) Press [START] key.
(The set value is stored, and the output corresponding to the set value is outputted for 30sec.)

Press [SYSTEM SETTINGS] key to stop the operation.

(The main charger grid output voltage adjustment and output check can be made in each print mode.)

Item			Set range	Default	
				MX-M350	MX-M450
1	AUTO	Auto mode	200 - 900	615	645
2	CHARACTER	Text mode		645	645
3	MIX	Text/Photo mode			
4	PHOTO	Photo mode			
5	PRINTER	Printer mode			
6	FAX	FAX mode			

SIMULATION 8-2
MAIN GRID SETTING. SELECT 1-6, AND PRESS START.
1. AUTO 645 2. CHARACTER 645
3. MIX 645 4. PHOTO 645
5. PRINTER 645 6. FAX 645

Press [START] key. Press [SYSTEM SETTINGS] key.

SIMULATION 8-2
MAIN GRID SETTING. INPUT VALUE, AND PRESS START.
1. AUTO (200-900) 645

Press [START] key. Press [SYSTEM SETTINGS] key. Or after 30sec output.

SIMULATION 8-2
MAIN GRID SETTING. EXECUTING... 645
1. AUTO

Purpose	Adjustment/Operation test/Check
Function (Purpose)	Used to check and adjust the operation of the transfer voltage and the control circuit.
Section	Image process (Photoconductor/Developing/Transfer/Cleaning)/Transfer

Operation/Procedure

- 1) Enter the number corresponding to the adjustment item with 10-key.
- 2) Press [START] key.
- 3) Enter the adjustment value with 10-key.

- 4) Press [START] key.

(The set value is stored, and the voltage corresponding to the set value is outputted for 30sec.)

Press [SYSTEM SETTINGS] key to stop the operation.

(The transfer output voltage adjustment and output check can be made in each print mode.)

Item			Set range	Default	
				MX-M350	MX-M450
1	FRONT	Long side print mode	0 - 620	220	267
2	BACK	Back side print mode		267	310

SIMULATION 8-6

THV+ SETTING. SELECT 1-2, AND PRESS START.

1. FRONT 267
2. BACK 310

1

Press [START] key. Press [SYSTEM SETTINGS] key.

SIMULATION 8-6

THV+ SETTING. INPUT VALUE, AND PRESS START.

1. FRONT (0-620) 267

267

Press [START] key. Press [SYSTEM SETTINGS] key. Or after 30sec output.

SIMULATION 8-6

THV+ SETTING. EXECUTING...

1. FRONT 267

267

Purpose	Operation test/Check
Function (Purpose)	Used to check and adjust the operation of the transfer voltage and the related circuit. (Transfer belt cleaning mode)
Section	Image process (Photoconductor/Developing/Transfer/Cleaning)
Item	Operation

Operation/Procedure

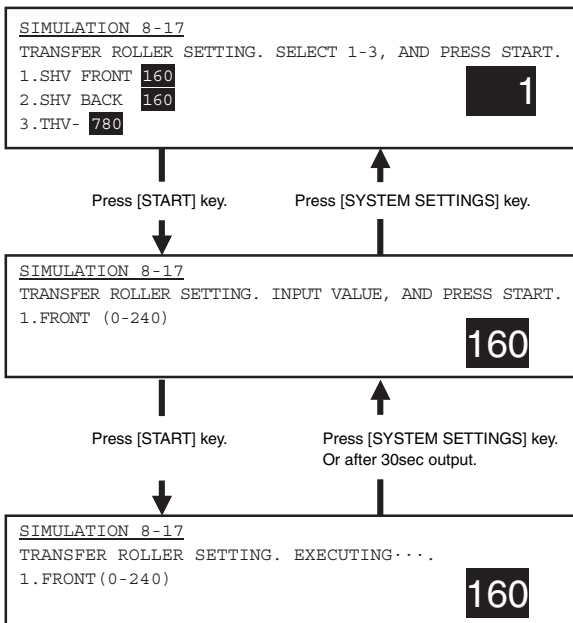
- 1) Enter the number corresponding to the adjustment item with 10-key.
- 2) Press [START] key.
- 3) Enter the adjustment value with 10-key.
- 4) Press [START] key.

(The set value is stored, and the voltage corresponding to the set value is outputted for 30sec.)

Press [SYSTEM SETTINGS] key to stop the operation.

(The transfer output voltage adjustment and output check can be made in the transfer belt cleaning mode.)

Item			Set range	Default	
				MX-M350	MX-M450
1	SHF FRONT	AC component	0 - 240	120	160
2	SHV BACK	AC component		120	160
3	THV-	DC component	0 - 1250	780	780



9-2

Purpose	Operation test/Check
Function (Purpose)	Used to check the operations of the sensors and detectors in the duplex section and its control circuit.
Section	Duplex
Item	Operation

Operation/Procedure

The operating conditions of the sensors and detectors are displayed.

The active sensors and detectors are highlighted.

ADUSET	ADU installation detection
DSW_D	ADU cabinet open detection
AINPD	ADU paper entry detection
APOD	ADU paper exit detection
APPD1	ADU paper detection 1
APPD2	ADU paper detection 2

SIMULATION 9-2
ADU SENSOR CHECK.

ADUSET DSW_D AINPD APOD APPD1 APPD2

9

9-1

Purpose	Operation test/Check
Function (Purpose)	Used to check and adjust the operation of the load (clutch/solenoid) in the duplex section and the control circuit.
Section	Duplex
Item	Operation

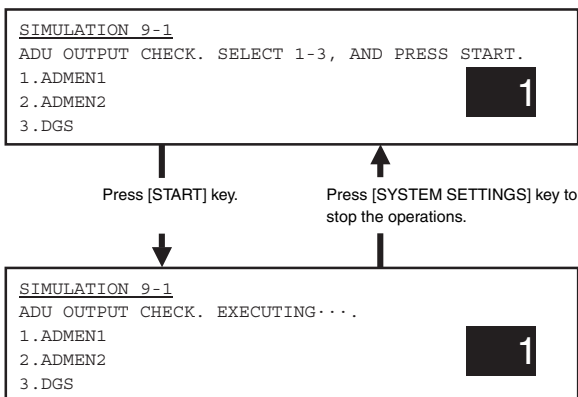
Operation/Procedure

- 1) Select the number corresponding to the target of the operation check with 10-key.
- 2) Press [START] key.

The load selected in procedure 1) is operated.

Press [SYSTEM SETTINGS] key to stop the operation.

1	ADMEN1	ADU motor 1 control signal
2	ADMEN2	ADU motor 2 control signal
3	DGS	ADU gate solenoid



10

10-1

Purpose	Operation test/Check
Function (Purpose)	Used to check the operations of the toner motor and the related circuit.
Section	Process (Developing)
Item	Operation

Operation/Procedure

- 1) Select the number corresponding to the target of the operation check with 10-key.
- 2) Press [START] key.

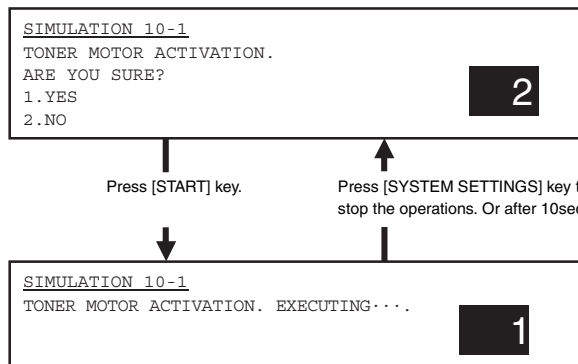
The load selected in procedure 1) is operated for 10sec.

Press [SYSTEM SETTINGS] key to stop the operation.

NOTE: Never execute this simulation with toner in the toner hopper.

If executed, excessive toner will enter the developing section. Be sure to remove the toner motor from the toner hopper before execution.

1	Toner motor rotation start
2	Cancel (The display returns to the main code entry menu.)



13

13-0

Purpose	Clear/Cancel (Trouble etc.)
Function (Purpose)	Used to cancel the self-diag "U1" trouble. (Only when FAX is installed.)
Section	FAX
Item	Trouble

Operation/Procedure

- 1) Select 1 (YES) with 10-key.
- 2) Press [START] key. (The trouble display is canceled.)

1	YES	After canceling U1 trouble, the machine returns to the main code entry standby mode.
2	NO	Without canceling U1 trouble, the machine returns to the main code entry standby mode.

SIMULATION 13

U1 TROUBLE CANCELLATION.
ARE YOU SURE?
1. YES
2. NO

1

14

14-0

Purpose	Clear/Cancel (Trouble etc.)
Function (Purpose)	Used to cancel excluding the self-diag U1/LCC/ U2/PF troubles.
Item	Trouble Error

Operation/Procedure

- 1) Select 1 (YES) with 10-key.
- 2) Press [START] key. (The trouble display is canceled.)

1	YES	After canceling the trouble other than U1, U2, PF, and LCC, the machine returns to the main code entry standby mode.
2	NO	Without canceling the trouble, the machine returns to the main code entry standby mode.

SIMULATION 14

TROUBLE CANCELLATION. (OTHERS)
ARE YOU SURE?
1. YES
2. NO

1

15

15-0

Purpose	Clear/Cancel (Trouble etc.)
Function (Purpose)	Used to cancel the self-diag "U6-01, 02, 03, F3-12, 22" (large capacity paper feed tray, paper feed trays 1, 2) troubles.
Section	LCC
Item	Trouble

Operation/Procedure

- 1) Select 1 (YES) with 10-key.
- 2) Press [START] key. (The trouble display is canceled.)

1	YES	After canceling the LCC trouble, the machine returns to the main code entry standby mode.
2	NO	Without canceling the trouble, the machine returns to the main code entry standby mode.

SIMULATION 15

LCC TROUBLE CANCELLATION.
ARE YOU SURE?
1. YES
2. NO

1

16

16-0

Purpose	Clear/Cancel (Trouble etc.)
Function (Purpose)	Used to cancel the self-diag U2 troubles.
Section	MFP control PWB, PCU PWB, scanner control PWB
Item	Trouble

Operation/Procedure

- 1) Select 1 (YES) with 10-key.
- 2) Press [START] key. (The trouble display is canceled.)

1	YES	After canceling the U2 trouble, the machine returns to the main code entry standby mode.
2	NO	Without canceling the trouble, the machine returns to the main code entry standby mode.

SIMULATION 16

U2 TROUBLE CANCELLATION.
ARE YOU SURE?
1. YES
2. NO

1

17

17-0

Purpose	Clear/Cancel (Trouble etc.)
Function (Purpose)	Used to cancel the PF troubles (when the copy inhibit command from the host computer is received).
Section	Communication unit (TEL/LIU/MODEM etc.)
Item	Trouble Error

Operation/Procedure

- 1) Select 1 (YES) with 10-key.
- 2) Press [START] key. (The trouble display is canceled.)

1	YES	After canceling the PF trouble, the machine returns to the main code entry standby mode.
2	NO	Without canceling the trouble, the machine returns to the main code entry standby mode.

SIMULATION 17
PF TROUBLE CANCELLATION.
ARE YOU SURE?
1. YES
2. NO

1

21

21-1

Purpose	Setting
Function (Purpose)	Used to set the maintenance cycle.
Item	Specifications Counter

Operation/Procedure

- 1) Enter the number corresponding to the maintenance timing display.
- 2) Press [START] key. The condition entered in procedure 1) is set.

Maintenance timing display		Set range
0	Default (Differs depending on the model.)	0 - 999
1 - 200	Maintenance display at 1K - 200K	
999	No maintenance display	

SIMULATION 21-1
MAINTENANCE CYCLE SETUP. INPUT VALUE 0-999, AND PRESS START.
0: DEFAULT
1-200: MAINTENANCE CYCLE (1K-200K)
999: FREE

0

22

22-1

Purpose	Adjustment/Setup/Operation data output/Check (Display/Print)
Function (Purpose)	Used to check the print count value in each section and each operation mode. (Used to check the maintenance timing.)
Item	Counter

Operation/Procedure

Various print counter values are displayed.

TOTAL	Total counter
DRUM	Drum counter
TONER	Toner counter
DEVE	Developer counter
MAINTENANCE	Maintenance counter
TOTAL OUTPUT	Total output quantity
COPIES	Copy effective paper counter
PRINTER	Printer counter
FAX OUTPUT	FAX print counter
I-FAX OUTPUT	Internet FAX print counter
DOC FILING OUTPUT	Document filing print counter
RIIGHT SIDE	Right paper exit counter
OTHERS	Other print counter (List print , etc.)

SIMULATION 22-1
COUNTER DATA DISPLAY.
TOTAL: ***** DRUM: ***** TONER: *****
DEVE: ***** MAINTENANCE: *****
TOTAL OUTPUT: ***** COPIES: *****
PRINTER: ***** FAX OUTPUT: *****
I-FAX OUTPUT:***** DOC FILING OUTPUT:*****
RIGHT SIDE:***** OTHERS: *****

22-2

Purpose	Adjustment/Setup/Operation data output/Check (Display/Print)
Function (Purpose)	Used to check the total numbers of misfeed and troubles. (When the number of misfeed is considerably great, it is judged as necessary for repair. The misfeed rate is obtained by dividing this count value with the total counter value.)
Item	Trouble

Operation/Procedure

The paper jam/trouble counter value is displayed.

PAPER JAM	Number of paper jams
SPF JAM	Number of SPF jams
TROUBLE	Number of troubles

SIMULATION 22-2
JAM/TROUBLE COUNTER DATA DISPLAY.
PAPER JAM: ***** SPF JAM: *****
TROUBLE: *****

Purpose	Adjustment/Setup/Operation data output/Check (Display/Print)
Function (Purpose)	Used to check misfeed positions and the misfeed count of each position. (If the misfeed count is considerably great, it may be judged as necessary to repair.)
Section	Sections other than SPF/DSPF section
Item	Trouble Misfeed

Operation/Procedure

The history of paper jams and misfeed is displayed.

The misfeed history is displayed sequentially from the latest one. The max. 100 items of misfeed history can be recorded. The data may be used to identify trouble position.

The latest 100 items of paper jam history are displayed. (Refer to the jam cause code table below.)

(Jam cause code)

Code	Description
NO_JAM_CAUSE	No jam. Also used to cancel a jam.
TRAY2	Tray 2 paper feed jam (MCPPD not-reaching: When AR-MU2 installed) (TPFD1 not-reaching: When AR-D28 installed) (DPFD1 not-reaching: When AR-D27 installed)
DPFD1_ND1	DPFD1 not-reaching jam (Desk tray 1 feed paper)
DPFD1_ND2	DPFD1 not-reaching jam (Desk tray 2 feed paper)
TPFD1_NTD	TPFD1 not-reaching jam (Tandem desk feed paper)
MCPPD_ST2	MCPPD remaining jam (Machine tray 2 feed paper: When AR-MU2 installed)
TPFD1_ST2	TPFD1 not-reaching jam (Machine tray 2 feed paper: When AR-D28 installed)
DPFD1_ST2	TPFD1 not-reaching jam (Machine tray 2 feed paper: When AR-D28 installed)
DPFD1_SD1	DPFD1 remaining jam (Desk tray 1 feed paper)
DPFD1_SD2	DPFD1 remaining jam (Desk tray 2 feed paper)
TPFD1_STD	TPFD1 remaining jam (Tandem desk feed paper)
PPD1NMF	PPD1 not-reaching jam (Manual feed tray paper)
TRAY1	Tray 1 feed paper jam (PPD1 not-reaching)
PPD1NT2	PPD1 not-reaching jam (Machine tray 2 feed paper)
PPD1ND1	PPD1 not-reaching jam (Desk tray 1 feed paper)
PPD1ND2	PPD1 not-reaching jam (Desk tray 2 feed paper)
PPD1NTD	PPD1 not-reaching jam (Tandem desk feed paper)
PPD1NAD	PPD1 not-reaching jam (ADU refeed paper)
PPD1SMF	PPD1 remaining jam (Manual feed tray feed paper)
PPD1ST1	PPD1 remaining jam (Machine tray 1 feed paper)
PPD1ST2	PPD1 remaining jam (Machine tray 2 feed paper)
PPD1SD1	PPD1 remaining jam (Desk tray 1 feed paper)
PPD1SD2	PPD1 remaining jam (Desk tray 2 feed paper)

Code	Description
PPD1STD	PPD1 remaining jam (Tandem desk feed paper)
PPD1SAD	PPD1 remaining jam (ADU refeed paper)
PPD1_PCU	PPD1 remaining jam (Timer end of fusing ready standby/high voltage rising completion standby, etc.)
PPD1PRI	PPD1 jam (Image ready is not supplied from ICU.)
POD1N	POD1 not-reaching jam
POD1S	POD1 remaining jam
POD2N	POD2 not-reaching jam
POD2SR	POD2 remaining jam (When discharging to the right side of machine.)
POD2SL	POD2 remaining jam (When discharging to the left side of machine.)
AINPDN	ADU paper entry sensor not-reaching jam
AINPDS	ADU paper entry sensor remaining jam
APODN	ADU paper exit sensor not-reaching jam
APODS	ADU paper exit sensor remaining jam
APPD1N	ADU transport sensor 1 not-reaching jam
APPD1S	ADU transport sensor 1 remaining jam
APPD2N	ADU transport sensor 2 not-reaching jam (When ADU transport)
APPD2S	ADU transport sensor 2 remaining jam (When ADU transport)
BPT	Manual feed tray paper feed jam (APPD2 not-reaching)
APPD2SM	ADU transport sensor 2 remaining jam (Manual feed tray feed paper)
DESK2	Desk tray 2 paper feed jam (DPFD3 not activated)
DPFD3SD2	DPFD3 remaining jam (Desk tray 2 feed paper)
DESK1	Desk tray 1 paper feed jam (DPFD2 not activated)
DPFD2N2	DPFD2 not-reaching jam (Desk tray 2 feed paper)
DPFD2S1	DPFD2 remaining jam (Desk tray 1 feed paper)
DPFD2S2	DPFD2 remaining jam (Desk tray 2 feed paper)
TTRAY2	Tandem tray 2 paper feed jam (TPFD3 not activated)
TPFD3S2	TPFD3 remaining jam (Tandem tray 2 feed paper)
TTRAY1	Tandem tray 1 paper feed jam (TPFD2 not activated)
TPFD2N2	TPFD2 not-reaching jam (Tandem tray 2 feed paper)
TPFD2S1	TPFD2 remaining jam (Tandem tray 1 feed paper)
TPFD2S2	TPFD2 remaining jam (Tandem tray 2 feed paper)
PPD1_DESK	DESK paper feed jam (Preliminary paper feed from the desk, no response in a certain time after paper feed instruction)
FPID_N	Built-in finisher PID not-reaching jam
FPID_S	Built-in finisher PID remaining jam
FSCID_N	Built-in finisher SCID not-reaching jam
FSCID_S	Built-in finisher SCID remaining jam
FSCID2N	Built-in finisher SCID2 not-reaching jam
FSCID2S	Built-in finisher SCID2 remaining jam
FPPD_S	Built-in finisher PPD remaining jam
FSCPD_N	Built-in finisher SCPD not-reaching jam
FSCPD_S	Built-in finisher SCPD remaining jam

22-7

Purpose	Adjustment/Setup/Operation data output/Check (Display/Print)
Function (Purpose)	Used to display the key operator code. (This simulation is used when the customer forgets the key operator code.)
Item	Data User data

Operation/Procedure

The key operator code is displayed.

```
SIMULATION 22-7
KEY OPERATOR CODE DISPLAY.
CODE: *****
```

22-8

Purpose	Adjustment/Setup/Operation data output/Check (Display/Print)
Function (Purpose)	Used to check the number of use of the finisher, the SPF, and the scan (reading) unit.
Section	Optical (Image scanning) Finisher
Item	Counter

Operation/Procedure

The values of the finisher counter, the scanner (read), counter, and the SPF related counters are displayed.

SPF	Document feed quantity
SCAN	Number of scans
STAPLER	Number of stapling
PUNCH	Number of punching
STAMP	Number of SPF finish stamps

```
SIMULATION 22-8
ORG./STAPLE COUNTER DATA DISPLAY.
SPF: *****
SCAN: *****
STAPLER: ***** PUNCH: *****
STAMP: *****
```

22-9

Purpose	Adjustment/Setup/Operation data output/Check (Display/Print)
Function (Purpose)	Used to check the number of use (print quantity) of each paper feed section.
Section	Paper feed, ADU
Item	Counter

Operation/Procedure

The values of the paper feed related counters are displayed.

TRAY1	Use quantity of tray 1
TRAY2	Use quantity of tray 2 (Multi purpose tray)
TRAY3/LCC1	Use quantity of tray 3/LCC left tray (Common to Desk/LCC)
TRAY4/LCC2	Use quantity of tray 4/LCC right tray
BPT	Use quantity of manual feed tray
ADU	Use quantity of duplex paper feed

```
SIMULATION 22-9
PAPER FEED COUNTER DATA DISPLAY.
TRAY1: ***** TRAY2: *****
TRAY3/LCC1: ***** TRAY4/LCC2: *****
BPT: ***** ADU: *****
```

22-10

Purpose	Adjustment/Setup/Operation data output/Check (Display/Print)
Function (Purpose)	Used to check the system configuration (option, internal hardware).
Item	Specifications Options

Operation/Procedure

The system configuration is displayed. (The model names of the installed devices and options are displayed.)

MACHINE	MX-M350U, MX-M450U/ MX-M350N, MX-M450N
SPF	(Model code)
FINISHER	NONE/ (Model code)
MAIL BIN	NONE/ (Model code)
PUNCH	NONE/ (Model code)
DESK/LCC	NONE/ (Model code)
ADU	NONE/ (Model code)
SYSTEM MEMORY	Memory capacity (MB)
HDD	Hard disk capacity (MB)
ICU	Board type
NIC	NONE/ (Model code)
NSCN	NONE/ (Network scanner)
PS3	NONE/ (PS3 expansion kit)
FAX	NONE/ (Model code)
FAX MEMORY	FAX expansion memory capacity (MB)
HAND SET	NONE/ (Model code)
STAMP	Finisher stamp NONE/ (Model code)
PCU TYPE	PCU PWB type (JPN: Japan/ EX100: EX Japan 100V/ EX200: EX Japan 200V)

(Model code list)

Item	Display	Content
MACHINE	MX-M350U	35-sheet U model (Local printer standard provision model)
	MX-M450U	45-sheet U model (Local printer standard provision model)
	MX-M350N	35-sheet N model
	MX-M450N	45-sheet N model
SPF	----	Document feed unit not installed
	MX-EFX1	Duplex document feed unit (DSPF) installed
FINISHER	----	After-work unit not installed
	AR-FN6	Built-in finisher installed
	AR-FN7	Console finisher installed
MAIL BIN	----	Mail bin not installed
	AR-MS1	Mail bin installed
Punch unit	----	Punch unit not installed
	AR-PN1A	Punch unit 2 holes
	AR-PN1B	Punch unit 3 holes
	AR-PN1C	Punch unit 4 holes
	AR-PN1D	Punch unit 4 holes wide hole
ADU	----	Duplex module not installed
	AR-DU3	Duplex module installed
	AR-DU4	Duplex module + manual feed unit installed
DESK	----	Paper feed desk not installed
	AR-MU2	Multi-purpose tray installed
	AR-D27	Paper feed desk installed
	AR-D28	Tandem desk installed
ICU	TYPE-U/S	For U/S model board
	TYPE-U/FP	For U/FP model board
	TYPE-N	For N model board
MEMORY	0MB	No expansion memory
	***MB	Expansion memory ***MB

22-19

Purpose	Adjustment/Setup/Operation data output/Check (Display/Print)
Function (Purpose)	Used to check the values of the counters related to the scan mode and the Internet FAX mode.
Section	Scanner
Item	Counter

Operation/Procedure

The values of the counters related to the scan mode and the Internet FAX mode are displayed.

NETWORK SCANNER ORIGINAL COUNTER	Document scan quantity (OC, SPF total quantity)
MAIL COUNTER	Number of mail send
FTP COUNTER	Number of FTP send
SMB COUNTER	Number of SMB send
INTERNET-FAX ORIGINAL COUNTER	Document scan quantity (OC, SPF total quantity)
INTERNET-FAX SEND	Number of internet FAX send
INTERNET-FAX RECEIVE	Number of internet FAX receive
INTERNET-FAX OUTPUT	Internet FAX print quantity
SCAN TO HDD	Scan to HDD record quantity
INTERNET-FAX SEND IMAGES	Number of internet FAX sending page
SCAN SEND IMAGES	Number of scan sending page

SIMULATION 22-19

NETWORK SCANNER AND INTERNET-FAX COUNTER DISPLAY.

```

NETWORK SCANNER ORIGINAL COUNTER: *****
MAIL COUNTER: *****
FTP COUNTER: *****
INTERNET-FAX ORIGINAL COUNTER: *****
INTERNET-FAX SEND: *****
INTERNET-FAX RECEIVE: *****
INTERNET-FAX OUTPUT: *****
SMB COUNTER: *****
SCAN TO HDD: *****
INTERNET-FAX SEND IMAGES: *****
SCAN SEND IMAGES: *****

```

22-30

Purpose	Setting value display/Check
Function (Purpose)	OSA vendor ID display (Application Communication Module)
Section	—

Operation/Procedure

When the product key for OSA (Application Communication Module) is effective, vendor ID is displayed. (MAX.: 8 code)

- * APPLICATION NAME: Application name (Max.36 characters)
- * VENDOR ID: Vendor ID (10 digits)

SIMULATION 22-30

```

OSA VENDOR DISPLAY (APPLICATION COMMUNICATION)
APPLICATION NAME      VENDOR ID
*****
*****
*****
*****
*****
*****
*****
*****
*****
*****
*****

```

22-31

Purpose	Setting value display/Check
Function (Purpose)	OSA vendor ID display (External account module)
Section	—

Operation/Procedure

When the product key for OSA (external account kit) is effective, vendor ID is displayed. (MAX.: 1 code)

- * APPLICATION NAME: Application name (Max.36 characters)
- * VENDOR ID: Vendor ID (10 digits)

SIMULATION 22-31

```

OSA VENDOR DISPLAY (EXTERNAL ACCOUNT)
APPLICATION NAME      VENDOR ID
*****
*****

```

23

23-2

Purpose	Adjustment/Setup/Operation data output/Check (Display/Print)
Function (Purpose)	Used to check the trouble history of paper jam and misfeed. (If the number of misfeed and troubles is considerably great, it may be judged as necessary to repair.)
Item	Trouble

Operation/Procedure

- 1) Select "1. PRINT START."
- 2) Press [START] key.

The trouble history of paper jam and misfeed is printed.

This data can be cleared by SIM 24-1.

SIMULATION 23-2

```

JAM/TROUBLE DATA PRINT MODE. SELECT SETTING, AND
PRESS START.
0. TRAY SELECT : AUTO ONLY
1. PRINT START

```

1

Press [START] key.

Press [SYSTEM SETTINGS] key or [START] key.

SIMULATION 23-2

```

JAM/TROUBLE DATA PRINT MODE.. EXECUTING...
0. TRAY SELECT : 1

```

0

23-80

Purpose	Operation test/Check
Function (Purpose)	Used to check the operations of the sensors and detectors in the paper feed and transport section.
Section	Paper feed, paper transport
Item	Operation

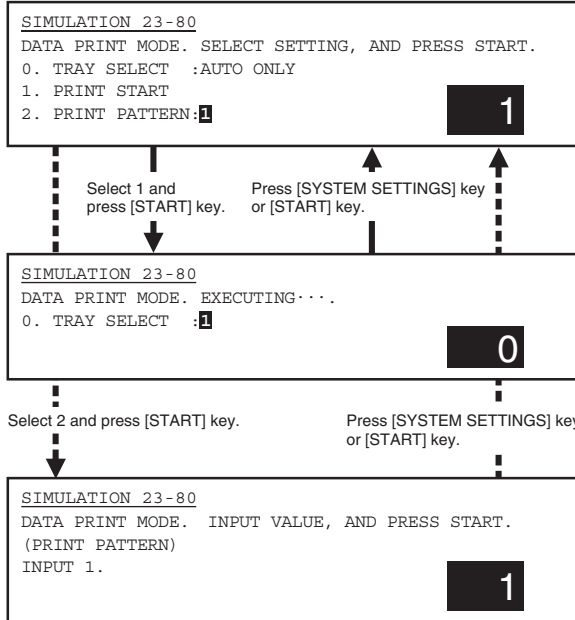
Operation/Procedure

- 1) Select "2. PRINT PATTERN."
- 2) Press [START] key.
- 3) Select "1" (Paper transport time data) with 10-key.

4) Press [START] key.

The list of the ON time of the sensors and the detectors of the paper transport section is printed. When a paper jam or misfeed is generated, the ON time of each sensor and detector is checked to check if the operation of the sensor and the detector, paper feed, and transport are normal or not.

0	TRAY SELECT AUTO ONLY	Auto only (No selection allowed)
1	PRINT START	Print execution Print of the set data is executed.
2	PRINT PATTERN	Print pattern 1. Paper transport time data



24

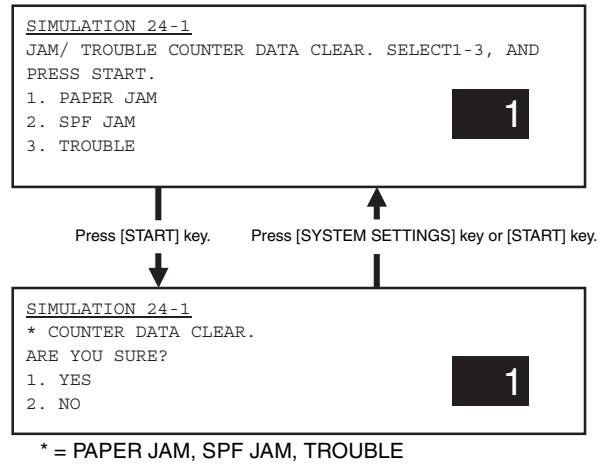
24-1

Purpose	Data clear
Function (Purpose)	Used to clear the misfeed counter, the misfeed history, the trouble counter, and the trouble history. (The counters are cleared after completion of maintenance.)
Item	Counter

Operation/Procedure

- 1) Select the counter to be cleared with 10-key.
- 2) Press [START] key.
The confirmation to clear is opened.
- 3) Select Yes/NO of counter clear with 10-key.
YES: Clear
NO: Not clear
- 4) Press [START] key.

1	PAPER JAM	Number of paper jams
2	SPF JAM	Number of SPF jams
3	TROUBLE	Number of troubles



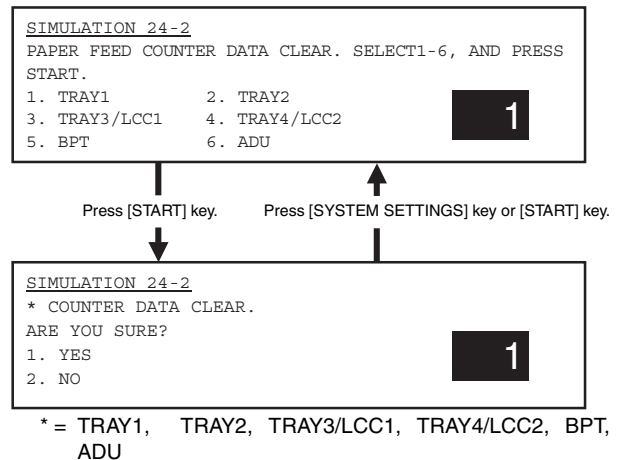
24-2

Purpose	Data clear
Function (Purpose)	Used to clear the number of use (the number of prints) of each paper feed section.
Section	Paper feed
Item	Counter

Operation/Procedure

- 1) Select the counter to be cleared with 10-key.
- 2) Press [START] key.
The confirmation to clear is opened.
- 3) Select Yes/NO of counter clear with 10-key.
YES: Clear
NO: Not clear
- 4) Press [START] key.

1	TRAY1	Tray 1 use quantity
2	TRAY2	Tray 2 use quantity
3	TRAY3/LCC1	Tray 3/LCC left tray use quantity
4	TRAY4/LCC2	Tray 4/LCC right tray use quantity
5	BPT	Manual feed tray use quantity
6	ADU	Duplex feed quantity



24-3

Purpose	Data clear
Function (Purpose)	Used to clear the number of use of the finisher, SPF, and the scan (reading) unit.
Section	
Item	Counter

Operation/Procedure

- 1) Select the counter to be cleared with 10-key.
- 2) Press [START] key.
The confirmation to clear is opened.
- 3) Select Yes/NO of counter clear with 10-key.
YES: Clear
NO: Not clear
- 4) Press [START] key.

1	SPF	SPF paper pass quantity
2	SCAN	Number of times of document scan
3	STAPLER	Number of times of stapling
4	PUNCH	Number of times of punching
5	STAMP	Number of times of SPF finish stamp

SIMULATION 24-3

ORG./STAPLE COUNTER DATA CLEAR. SELECT 1-5, AND PRESS START.

1. SPF
2. SCAN
3. STAPLER
4. PUNCH
5. STAMP

1

Press [START] key.

Press [SYSTEM SETTINGS] key or [START] key.

SIMULATION 24-3

* COUNTER DATA CLEAR.
ARE YOU SURE?

1. YES
2. NO

1

* = SPF, SCAN, STAPLER, PUNCH, STAMP

24-4

Purpose	Data clear
Function (Purpose)	Used to reset the maintenance counter.
Item	Counter

Operation/Procedure

- 1) Select the counter to be cleared with 10-key.
- 2) Press [START] key.
The confirmation to clear is opened.
- 3) Select Yes/NO of counter clear with 10-key.
YES: Clear
NO: Not clear
- 4) Press [START] key.

1	MAINTENANCE	Maintenance counter
---	-------------	---------------------

SIMULATION 24-4

MAINTENANCE COUNTER DATA CLEAR. PRESS START.

1. MAINTENANCE

1

Press [START] key.

Press [SYSTEM SETTINGS] key or [START] key.

SIMULATION 24-4

* COUNTER DATA CLEAR.
ARE YOU SURE?

1. YES
2. NO

1

* = MAINTENANCE

24-5

Purpose	Data clear
Function (Purpose)	Used to reset the developer counter. (The developer counter of the DV unit which is installed is reset.)
Section	Image process (Photoconductor/Developing/Transfer/Cleaning)
Item	Counter Developer

Operation/Procedure

- 1) Select the counter to be cleared with 10-key.
- 2) Press [START] key.
The confirmation to clear is opened.
- 3) Select Yes/NO of counter clear with 10-key.
YES: Clear
NO: Not clear
- 4) Press [START] key.

1	DV CARTRIDGE	Developer cartridge
---	--------------	---------------------

SIMULATION 24-5

DEVELOPER COUNTER DATA CLEAR. PRESS START.

1. DV CARTRIDGE

1

Press [START] key.

Press [SYSTEM SETTINGS] key or [START] key.

SIMULATION 24-5

* COUNTER DATA CLEAR.
ARE YOU SURE?

1. YES
2. NO

1

* = DV CARTRIDGE

24-6

Purpose	Data clear
Function (Purpose)	Used to reset the copy counter.
Item	Counter Copy

Operation/Procedure

- 1) Select the counter to be cleared with 10-key.
- 2) Press [START] key.
The confirmation to clear is opened.
- 3) Select Yes/NO of counter clear with 10-key.
YES: Clear
NO: Not clear
- 4) Press [START] key.

1	COPY	Copy effective paper counter
---	------	------------------------------

SIMULATION 24-6
COPY COUNTER DATA CLEAR. PRESS START.
1. COPY

Press [START] key. Press [SYSTEM SETTINGS] key or [START] key.

SIMULATION 24-6
* COUNTER DATA CLEAR.
ARE YOU SURE?
1. YES
2. NO

* = COPY

24-7	
Purpose	Data clear
Function (Purpose)	Used to clear the OPC drum counter. (Perform this simulation when the OPC drum is replaced.)
Section	Image process (Photoconductor/Developing/Transfer/Cleaning)
Item	Counter Photo conductor

Operation/Procedure

- 1) Select the counter to be cleared with 10-key.
- 2) Press [START] key.
The confirmation to clear is opened.
- 3) Select Yes/NO of counter clear with 10-key.
YES: Clear
NO: Not clear
- 4) Press [START] key.

After replacing the OPC drum, be sure to clear the OPC drum counter.

1	DRUM	OPC drum counter
---	------	------------------

SIMULATION 24-7
DRUM COUNTER DATA CLEAR. SELECT1, AND PRESS START.
1. DRUM

Press [START] key. Press [SYSTEM SETTINGS] key or [START] key.

SIMULATION 24-7
* COUNTER DATA CLEAR.
ARE YOU SURE?
1. YES
2. NO

* = DRUM

24-9	
Purpose	Data clear
Function (Purpose)	Used clear the printer mode print counter and the self print mode print counter.
Section	Printer
Item	Counter

Operation/Procedure

- 1) Select the counter to be cleared with 10-key.
- 2) Press [START] key.
The confirmation to clear is opened.

- 3) Select Yes/NO of counter clear with 10-key.

YES: Clear

NO: Not clear

- 4) Press [START] key.

After replacing the OPC drum, be sure to clear the OPC drum counter.

1	PRINTER	Printer counter (Print mode)
2	OTHERS	Other effective paper counter (Self print mode)

SIMULATION 24-9
PRINTER/OTHERS COUNTER DATA CLEAR. SELECT1-2, AND PRESS START.
1. PRINTER
2. OTHERS

Press [START] key. Press [SYSTEM SETTINGS] key or [START] key.

SIMULATION 24-9
* COUNTER DATA CLEAR.
ARE YOU SURE?
1. YES
2. NO

* = PRINTER, OTHERS

24-10	
Purpose	Data clear
Function (Purpose)	Used to clear the FAX counter. (Only when FAX is installed)
Section	FAX
Item	Counter

Operation/Procedure

- 1) Select the counter to be cleared with 10-key.
- 2) Press [START] key.
The confirmation to clear is opened.
- 3) Select Yes/NO of counter clear with 10-key.
YES: Clear
NO: Not clear
- 4) Press [START] key.

1	FAX SEND	Number of times of FAX send
2	FAX RECEIVE	Number of times of FAX receive
3	FAX OUTPUT	FAX print quantity
4	SEND IMAGES	Send quantity
5	SEND TIME	Send time
6	RECEIVE TIME	Receive time

SIMULATION 24-10
FAX COUNTER DATA CLEAR. SELECT1-6, AND PRESS START.
1. FAX SEND
2. FAX RECEIVED
3. FAX OUTPUT
4. SEND IMAGES
5. SEND TIME
6. RECEIVE TIME

Press [START] key. Press [SYSTEM SETTINGS] key or [START] key.

SIMULATION 24-10
* COUNTER DATA CLEAR.
ARE YOU SURE?
1. YES
2. NO

* = FAX SEND, FAX RECEIVED, FAX OUTPUT, SEND IMAGES, SEND TIME, RECEIVE TIME

24-11

Purpose	Data clear
Function (Purpose)	Used to reset the OPC drum rotation time, and the DV unit rotation time counter. The developer counter in the DV unit installed is reset.
Section	Image process (Photoconductor/Developing/Transfer/Cleaning)
Item	Counter Developer

Operation/Procedure

- 1) Select the counter to be cleared with 10-key.
- 2) Press [START] key.
The confirmation to clear is opened.
- 3) Select Yes/NO of counter clear with 10-key.
YES: Clear
NO: Not clear
- 4) Press [START] key.

1	DRUM ROTATION	OPC drum rotation time
2	DV ROTATION	DV unit rotation time

SIMULATION 24-11

TIMER DATA CLEAR. SELECT1-2, AND PRESS START.

1. DRUM ROTATION
2. DV ROTATION

Press [START] key.

Press [SYSTEM SETTINGS] key or [START] key.

SIMULATION 24-11

* TIMER DATA CLEAR.

ARE YOU SURE?

1. YES
2. NO

* = DRUM ROTATION, DV ROTATION

24-15

Purpose	Data clear
Function (Purpose)	Used to clear the counters related to the scan mode and the Internet FAX mode.
Item	Counter

Operation/Procedure

- 1) Select the counter to be cleared with 10-key.
- 2) Press [START] key.
The confirmation to clear is opened.
- 3) Select Yes/NO of counter clear with 10-key.
YES: Clear
NO: Not clear
- 4) Press [START] key.

1	NETWORK SCANNER ORIGINAL COUNTER	Document scan quantity counter in the network scanner mode
2	MAIL COUNTER	Number of times of mail send
3	FTP COUNTER	Number of times of FTP send
4	INTERNET-FAX ORIGINAL COUNTER	Internet FAX document scan quantity (Total quantity of OC and SPF)
5	INTERNET-FAX SEND	Number of times of Internet FAX send
6	INTERNET-FAX RECEIVE	Number of times of Internet FAX receive
7	INTERNET-FAX OUTPUT	Internet FAX print quantity
8	SCAN TO HDD	SCAN TO HDD record quantity
9	INTERNET-FAX SEND IMAGES	Internet FAX send quantity counter

10	MAIL SEND IMAGES	MAIL send quantity counter
11	FTP SEND IMAGES	FTP send quantity counter
12	DOC FILING OUTPUT	Document filing print counter.

SIMULATION 24-15

NETWORK SCANNER AND INTERNET-FAX COUNTER CLEAR. SELECT1-3, AND PRESS START.

1. NETWORK SCANNER ORIGINAL COUNTER
2. MAIL COUNTER
3. FTP COUNTER
4. INTERNET-FAX ORIGINAL COUNTER: *****
5. INTERNET-FAX SEND: *****
6. INTERNET-FAX RECEIVE: *****
7. INTERNET-FAX OUTPUT: *****
8. SCAN TO HDD: *****
9. INTERNET-FAX SEND IMAGES: *****
10. MAIL SEND IMAGES: *****
11. FTP SEND IMAGES: *****
12. DOC FILING OUTPUT: *****

Press [START] key.

Press [SYSTEM SETTINGS] key or [START] key.

SIMULATION 24-15

* COUNTER DATA CLEAR.

ARE YOU SURE?

1. YES
2. NO

* = NETWORK SCANNER ORIGINAL, MAIL, FTP, INTERNET-FAX ORIGINAL COUNTER, INTERNET-FAX SEND, INTERNET-FAX RECEIVE, INTERNET-FAX OUTPUT, SCAN TO HDD, INTERNET-FAX SEND IMAGES, MAIL SEND IMAGES, FTP SEND IMAGES, DOC FILING OUTPUT

25

25-1

Purpose	Operation test/Check
Function (Purpose)	Used to check the operations of the developing section (toner concentration, humidity and toner concentration sensor, humidity sensor, temperature sensor output can be monitored.)
Section	Process (Developing section)
Item	Operation

Operation/Procedure

Press [START] key.

The developing motor and the OPC drum motor rotate, and the toner concentration detection level and the humidity sensor detection level and the temperature sensor detection level are displayed.

SIMULATION 25-1

TONER SENSOR OUTPUT MONITOR. PRESS START.

HUMIDITY AREA : 70.0 - 72.5
 TEMPERATURE AREA : 70.0 - 72.5
 DEVE REFERENCE : 128

Press [START] key.

Press [SYSTEM SETTINGS] key, and the operation is stopped immediately or after 2 min.

SIMULATION 25-1

DV MONITOR. EXECUTING...

HUMIDITY AREA : 70.0 - 72.5
 TEMPERATURE AREA : 70.0 - 72.5
 DEVE REFERENCE : 128

Purpose	Setting
Function (Purpose)	Used to make the initial setting of toner concentration when replacing developer.
Section	Image process (Photoconductor/Developing/Transfer/Cleaning)

Operation/Procedure

- 1) Press [START] key.

The developing motor rotates for 2 min and the toner concentrations sensor makes sampling of toner concentration 16 times, and the detection level is displayed.

After the developing motor stops, the average value of toner concentration sampling is set as the reference toner concentration level.

NOTE: When the above operation is interrupted on the way, the reference toner concentration level is not set. Also when error code of EE-EL or EE-EU is displayed, the reference toner concentration level is not set normally.

(Default: 118)

- 2) The humidity near the developing tank at the developing adjustment is registered.

SIMULATION 25-2
 AUTOMATIC DV ADJUSTMENT. PRESS START.
 HUMIDITY AREA : 70.0 - 72.5
 TEMPERATURE AREA: 70.0 - 72.5
 DEVE REFERENCE : 118

Press [START] key. Press [SYSTEM SETTINGS] key, and the operation is stopped immediately or after 2 min.

SIMULATION 25-2
 AUTOMATIC DV ADJUSTMENT. EXECUTING...
 HUMIDITY AREA : 70.0 - 72.5
 TEMPERATURE AREA: 70.0 - 72.5
 DEVE REFERENCE : 118

Purpose	Setting
Function (Purpose)	Used to set the specifications of the auditor. Setting must be made according to the auditor use conditions.
Section	Auditor
Item	Specifications

Operation/Procedure

- 1) Select the number corresponding to the auditor mode with 10-key.
- 2) Press [START] key.

1	P10	Built-in auditor mode
2	VENDOR	Coin vendor mode
3	OTHERS	Other
4	VENDOR-EX	Coin vendor mode (without temporarily charge)
5	VENDOR-EX+	Coin vendor mode (without temporarily charge) + Document filing function enable
6	VENDOR-EX (MULTI JOB)	Coin vendor mode (No temporary charge) + (JOB queueing)
7	VENDOR-EX + (MULTI JOB)	Coin vendor mode (No temporary charge) + Document filing enable + (JOB queueing)

(Default: 1)

SIMULATION 26-3
 AUDITOR SETUP. SELECT 1-3, AND PRESS START.
 1. P10
 2. VENDOR
 3. OTHERS
 4. VENDOR-EX
 5. VENDOR-EX+

1

Purpose	Setting
Function (Purpose)	Used to set the count mode of the total counter and the maintenance counter.
Item	Specifications
	Counter

Operation/Procedure

- 1) Select the number corresponding to the counter to be set with 10-key.
- 2) Press [START] key.
- 3) Select the count mode with 10-key.
- 4) Press [START] key.

Set the count-up (1 or 2) for A3/WLT paper.

(Select the target counter.)

1	TOTAL COUNTER	Total counter
2	MAINTENANCE (DRUM) COUNTER	Maintenance counter/ OPC drum counter
3	DV COUNTER	Developer counter

(Count-up)

1	1 COUNT UP	1 count-up	
2	2 COUNT UP	2 count-up	Default

SIMULATION 26-5
 A3 (LEDGER) COUNT UP MODE SETTING. SELECT 1-3, AND PRESS START.
 1. TOTAL COUNTER 2
 2. MAINTENANCE (DRUM) COUNTER 2
 3. DV COUNTER 2

1

Press [START] key. Press [SYSTEM SETTINGS] key.

SIMULATION 26-5
 A3 (LEDGER) COUNT UP MODE SETTING. SELECT 1-2, AND PRESS START.
 1. TOTAL COUNTER
 (1: 1COUNT UP, 2: 2COUNT UP)

2

Purpose	Setting
Function (Purpose)	Used to set the specifications (paper, document detection, etc.) of the destination.
Item	Specifications
	Destination

Operation/Procedure

- 1) Select the number corresponding to the destination with 10-key.
- 2) Press [START] key.

After completion of setting, the machine is automatically reset.

1	USA	United States of America
2	CANADA	Canada
3	INCH	Inch series EX
4	JAPAN	Japan
5	AB_B	AB series B5
6	EUROPE	Europe
7	UK	UK
8	AUSTRALIA	Australia

9	AB_A	AB series A5
10	CHINA	China

Since this simulation cannot change the Fax destination, use SIM 66-2 to change the FAX destination.

SIMULATION 26-6

DESTINATION SETUP. SELECT 1-10, AND PRESS START.

1.USA 2.CANADA 3.INCH
4.JAPAN 5.AB_B
6.EUROPE 7.UK 8.AUSTRALIA
9.AB_A 10.CHINA

1

26-10

Purpose	Setting
Function (Purpose)	Used to set the network scanner trial mode.
Item	Operation

Operation/Procedure

- 1) Select START/END of the network scanner trial mode with 10-key.
- 2) Press [START] key.

Max. 500 menus can be scanned.

0	END	Trial mode cancel	Default
1	START	Trial mode start	

SIMULATION 26-10

NETWORK SCANNER TRIAL SETTING. SELECT 0-1, AND PRESS START.

0.END
1.START

0

26-18

Purpose	Setting
Function (Purpose)	Used to set YES/NO of toner save operation. (This function is valid only in Japan and UK versions. (Depends on the destination setting of SIM26-6.) For the other destinations, the same setting can be made by the user program P22.)
Item	Specifications Operation mode

Operation/Procedure

- 1) Select YES/NO of the toner save mode with 10-key.
- 2) Press [START] key.

0	YES	Toner save mode is set.	
1	NO	Toner save mode is not set.	Default

SIMULATION 26-18

TONER SAVE MODE SETTING. SELECT 0-1, AND PRESS START.

0. YES
1. NO

1

26-30

Purpose	Setting
Function (Purpose)	Used to set the operation mode conforming to the CE mark (Europe safety standards). (Conforming to soft start when driving the fusing heater lamp.)
Item	Specifications Operation mode (Common)

Operation/Procedure

- 1) Select the number corresponding to the operation mode with 10-key.
- 2) Press [START] key.

0	NO	CE mark control NO (Normal operation)
1	YES	CE mark control YES (Heater lamp soft start operation)

(Default: 1 for Europe, 0 for the others)

SIMULATION 26-30

CE MARK CONTROL SETTING. SELECT 0-1, AND PRESS START.

0. NO
1. YES

0

26-35

Purpose	Setting
Function (Purpose)	Used to set whether the same continuous troubles are displayed as one trouble or the series of troubles with SIM 22-4 when the same troubles occur continuously.
Section	
Item	Specifications

Operation/Procedure

- 1) Select the number corresponding to the operation mode with 10-key.
- 2) Press [START] key.

0	ONCE	When two or more troubles of a same kind occur continuously, the troubles are displayed as one trouble in the trouble history of SIM22-4.
1	ANY	When two or more troubles of a same kind occur continuously, the troubles are displayed straightly as two or more troubles in the trouble history of SIM22-4.

(Default: 0)

SIMULATION 26-35

TROUBLE MEMORY MODE SETTING. SELECT 0-1, AND PRESS START.

0. ONCE
1. ANY

0

26-38

Purpose	Setting
Function (Purpose)	Used to set CONTINUE/STOP of printing when maintenance timing is over and the count value reaches 110% of replacement timing (life).
Section	Other
Item	Specifications

Operation/Procedure

- 1) Select the number corresponding to the operation mode with 10-key.
- 2) Press [START] key.

0	PRINT CONTINUE	Print continue
1	PRINT STOP	Print stop

(Default: 0)

SIMULATION 26-38

LIFE OVER SETTING. SELECT 0-1, AND PRESS START.

0. PRINT CONTINUE
1. PRINT STOP

0

26-41

Purpose	Setting
Function (Purpose)	Used to set the automatic magnification ratio selection (AMS) in the pamphlet mode.
Section	
Item	Specifications Operation mode (Common)

Operation/Procedure

- 1) Enter the number corresponding to whether AMS operation is automatically performed or nor in the center binding mode with the 10-key.
- 2) Press [START] key.

0	NO	AMS/APS selection allowed
1	YES	AMS is forcibly operated.

(Default: 1 for Europe and UK, 0 for the others)

SIMULATION 26-41

PAMPHLET MODE AMS SETTING. SELECT 0-1, AND PRESS START.

0. NO

1. YES

0

26-50

Purpose	Setting
Function (Purpose)	Black-White reverse YES/NO setting (Except for UK)
Item	Specifications Operation

Operation/Procedure

- 1) Select ENABLE/DISABLE of the B/W reverse mode with 10-key.
- 2) Press [START] key.

0	DISABLE	B/W reverse mode DISABLE	
1	ENABLE	B/W reverse mode ENABLE	Default

SIMULATION 26-50

B/W REVERSE MODE SETTING. SELECT 0-1, AND PRESS START.

0. DISABLE

1. ENABLE

1

26-52

Purpose	Setting
Function (Purpose)	Used to set whether non-print paper (insertion paper, cover paper) (blank image print paper) is counted up or not.
Section	Paper transport (Discharge/Switchback/Transport)
Item	Specifications Operation mode

Operation/Procedure

- 1) Select YES/NO of the non-print paper count-up with 10-key.
- 2) Press [START] key.

Non-print paper means an insert paper (without copying) in the OHP insertion mode, a cover (without copying) in the cover insertion mode, back surface, and white paper in the duplex exit mode (CA, etc.).

0	NO (NO COUNT UP)	No count up
1	YES (COUNT UP)	Count up

(Default: 0 for Japan and Australia, 1 for the other)

The target counters are as follows:

- Copies counter
- Printer counter
- Department management counter
- Total counter

- Effective paper counter

SIMULATION 26-52

BLANK PAPER COUNT UP SETTING. SELECT 0-1, AND PRESS START.

0. NO (NO COUNT UP)

1. YES (COUNT UP)

1

26-68

Purpose	Setting
Function (Purpose)	Used to set ENABLE/DISABLE of the CA key cancel function of print stop.
Section	
Item	Specifications Operation

Operation/Procedure

- 1) Select ENABLE/DISABLE of the CA key cancel function of print stop with 10-key.
- 2) Press [START] key.

0	DISABLE	Disable
1	ENABLE (PRINT STOP)	Enable

(Default: 1)

SIMULATION 26-68

CA KEY CANCEL MODE SETTING. SELECT 0-1, AND PRESS START.

0. DISABLE

1. ENABLE (PRINT STOP)

1

27

27-1

Purpose	Setting
Function (Purpose)	Used to set the specifications for operations in case of communication trouble between the host computer and MODEM (machine side). (When communication trouble occurs between the host computer MODEM and the machine, the self diag display (U7-00) is printed and setting for inhibition of print or not is made.)
Section	Communication unit (TEL/LIU/MODEM etc.)
Item	Specifications Operation mode

Operation/Procedure

- 1) Select the number corresponding to the operation mode with 10-key.
- 2) Press [START] key.

0	YES	Though a communication trouble occurs between the host computer and the MODEM (machine side), there is no effect on the machine operations.
1	NO	When a communication trouble occurs between the host computer and the MODEM (machine side), the self diag display (U7-00) is displayed and printing is inhibited.

(Default: 0)

SIMULATION 27-1

DISABLING OF U7-00 TROUBLE. SELECT 0-1, AND PRESS START.

0. YES

1. NO

0

27-5

Purpose	Setting
Function (Purpose)	Used to enter the machine tag No. (This function allows to check the tag No. of the machine with the host computer.)
Section	Communication unit (TEL/LIU/MODEM etc.)
Item	Specifications Operation mode

Operation/Procedure

- 1) Enter the tag number with 10-key.
- 2) Press [START] key.

SIMULATION 27-5

TAG # SETTING. INPUT VALUE, AND PRESS START.
 PRESENT: 00010000
 NEW: 00009999

30

30-1

Purpose	Operation test/Check
Function (Purpose)	Used to check the operation of sensors and detectors in other than the paper feed section and the operations of the related circuits.
Item	Operation

Operation/Procedure

The operating conditions of sensors and detectors are displayed.
 The active sensors and detectors are highlighted.

PPD1	Resist roller front paper detection
POD1	After-fusing transport detection 1
POD2	After-fusing transport detection 2
POD3	Paper full detection
DSWL	Cabinet open detection
DSWF	Front door

SIMULATION 30-1

SENSOR CHECK..
 PPD1 POD1 POD2 **POD3** **DSWL**
 DSWF

30-2

Purpose	Operation test/Check
Function (Purpose)	Used to check the operation of sensors and detectors in the paper feed section and the related circuits.
Section	Paper feed
Item	Operation

Operation/Procedure

The operating conditions of sensors and detectors are displayed.
 The active sensors and detectors are highlighted.

CSS1	Tray 1 insertion detection
PED	Tray 1 paper empty detection
LUD	Tray 1 upper limit detection
MCSET	MP unit detection
MCDRS	MP unit side door open detection
MCPPD	MP tray transport detection
MCLUD	MP tray upper limit detection
MCPED	MP tray paper empty detection
MCSPD	MP tray remaining quantity detection
MCSS1	MP tray size detection 1
MCSS2	MP tray size detection 2
MCSS3	MP tray size detection 3
MCSS4	MP tray size detection 4
MP Tray size	(The detection size of MP tray is displayed.)
MPFSET	Manual feed tray detection
MPED	Manual feed tray paper empty detection
MPLD	Manual feed length detection
MPLS1	Manual feed pull-out sensor 1
MPLS2	Manual feed pull-out sensor 2
Bypass Tray size	(The detection size of manual feed tray is displayed.)

SIMULATION 30-2

TRAY SENSOR CHECK..
 CSS PED LUD
MCSET MCDRS MCPPD MCLUD MCPED MCSPD MCSS1 MCSS2
 MCSS3 MCSS4 (MP Tray size: **A4**)
MPFSET MPED MPLD MPLS1 MPLS2
 (Bypass Tray size: **A3**)

40

40-1

Purpose	Operation test/Check
Function (Purpose)	Used to check the operation of the manual feed tray paper size detector and the related circuit. (The operation of the manual feed tray paper size detector can be monitored with the LCD display.)
Section	Paper feed
Item	Operation

Operation/Procedure

The operating conditions of sensors and detectors are displayed.
 The active sensors and detectors are highlighted.
 The paper width size detection level is displayed.

MPLD	Manual tray length detection
MPLS1	Manual tray pull-out detection 1
MPLS2	Manual tray pull-out detection 2
BYPASS_WIDTH	Manual feed guide plate position
BYPASS_AD	Manual feed width detection volume output AD value
Bypass Tray width size	(Manual tray detection size is displayed.) A4/A3, 11 x, B5/B4, 8.5 x, A4R, B5R, A5R, 5.5x, 7.25x, EXTRA

SIMULATION 40-1

BYPASS TRAY SENSOR CHECK..
MPLD MPLS1 MPLS2
 BYPASS_WIDTH: **2100** BYPASS_AD: **600**
 (Bypass Tray width size: **A4/A3**)

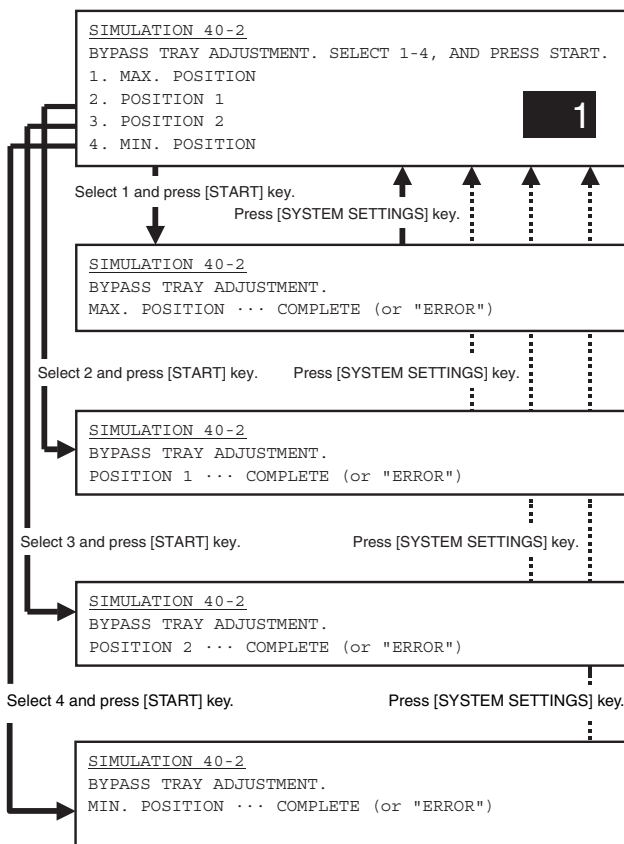
40-2

Purpose	Adjustment
Function (Purpose)	Used to adjust the manual paper feed tray paper width detector detection level.
Section	Paper feed
Item	Operation

Operation/Procedure

- 1) Open the manual paper feed guide to the max. width.
- 2) Select MAX POSITION with 10-key.
- 3) Press [START] key.
The max. width detection level is recognized.
- 4) Press [SYSTEM SETTINGS] key.
- 5) Set the manual paper feed guide to A4R size width.
- 6) Select POSITION with 10-key.
- 7) Press [START] key.
The A4R width detection level is recognized.
- 8) Press [SYSTEM SETTINGS] key.
- 9) Set the manual paper feed guide to A5/A5R size width.
- 10) Select POSITION2 with 10-key.
- 11) Press [START] key.
The A5R width detection level is recognized.
- 12) Press [SYSTEM SETTINGS] key.
- 13) Open the manual paper feed guide to the min. width.
- 14) Select MIN POSITION with 10-key.
- 15) Press [START] key.
The min. width detection level is recognized.

If the above procedures are not completed normally, "ERROR" is displayed. If completed normally, "COMPLETE" is displayed.



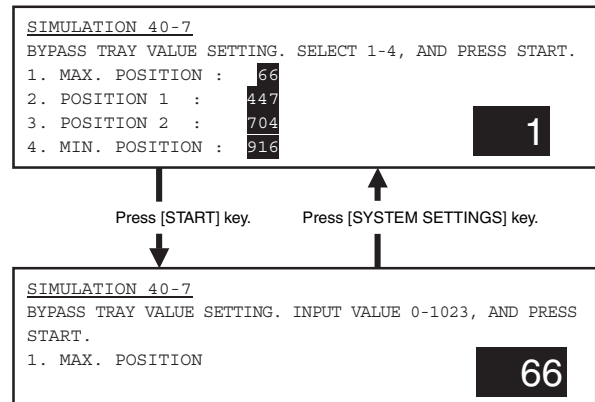
40-7

Purpose	Adjustment/Setup
Function (Purpose)	Used to enter the manual paper feed tray paper width adjustment value.
Section	Paper feed
Item	Operation

Operation/Procedure

- 1) Select the number corresponding to the set item with 10-key.
- 2) Press [START] key.
- 3) Enter the set value with 10-key.
- 4) Press [START] key.

1	MAX. POSITION	Max. width
2	POSITION 1	Adjustment point 1
3	POSITION 2	Adjustment point 2
4	MIN. POSITION	Min. value



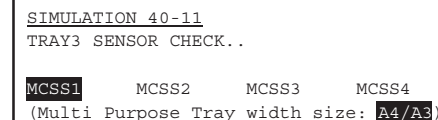
40-11

Purpose	Operation test/Check
Function (Purpose)	Used to check the multi-purpose tray width detection level.
Section	Paper feed
Item	Operation

Operation/Procedure

The operating conditions of sensors and detectors are displayed.
The active sensors and detectors are highlighted.
The paper width detection level is also displayed.

MCSS1	Tray 3 size detection 1
MCSS2	Tray 3 size detection 2
MCSS3	Tray 3 detection size 3
MCSS4	Tray 3 size detection 4
Multi Purpose Tray	(MPT width direction detection size is displayed.) A4/A3, 11X, B5/B4, 8.5X, A4R, B5R, A5R, 5.5X, 7.25X, EXTRA



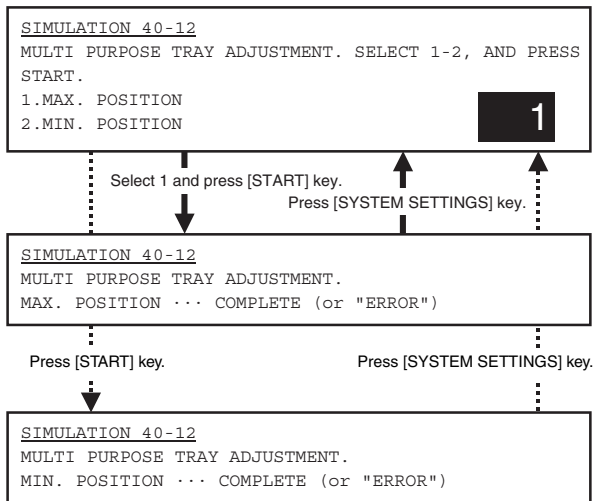
40-12

Purpose	Adjustment/Setup
Function (Purpose)	Used to adjust the multi-purpose tray width detection level.
Section	Paper feed
Item	Operation

Operation/Procedure

- 1) Open the paper feed tray 2 paper feed guide to the max. width position.
- 2) Select MAX POSITION with 10-key.
- 3) Press [START] key.
The max. width detection level is recognized.
- 4) Press [SYSTEM SETTINGS] key.
- 5) Open the paper feed tray 3 paper feed guide to the min. width position.
- 6) Select MIN POSITION with 10-key.
- 7) Press [START] key.
The min. width detection level is recognized.

If the above procedures are not completed normally, "ERROR" is displayed. If completed normally, "COMPLETE" is displayed.



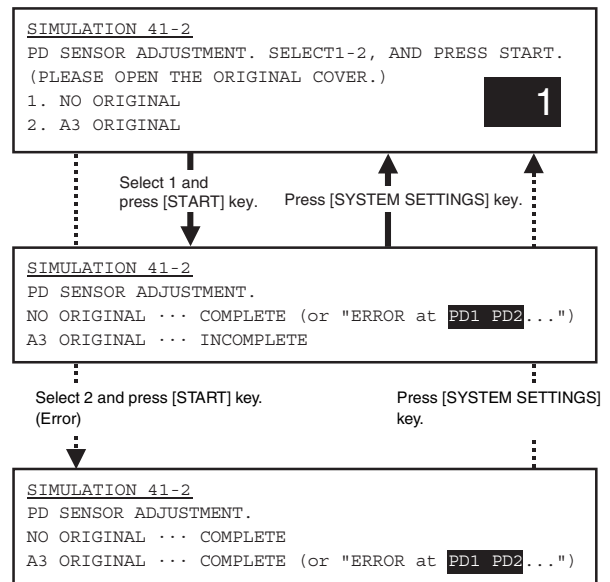
41-2

Purpose	Adjustment
Function (Purpose)	Used to adjust the document size sensor sensing level.
Section	Other
Item	Operation

Operation/Procedure

- 1) Open the document cover and select NO ORIGINAL with 10-key without placing any document on the document table.
- 2) Press [START] key.
The sensor level is set without document on the document table.
- 3) Place an A3 document on the document table, and select A3 ORIGINAL with 10-key.
- 4) Press [START] key.
The sensor level is set when detection the document.

If the above procedures are not completed normally, "ERROR" is displayed. If completed normally, "COMPLETE" is displayed.



41

41-1

Purpose	Operation test/Check
Function (Purpose)	Used to check the operation of the document size sensor and the related circuit. (The operation of the document size sensor can be monitored with the LCD display.)
Section	Other
Item	Operation

Operation/Procedure

The operating conditions of sensors and detectors are displayed.
The active sensors and detectors are highlighted.

OCSW	Document cover status	Open: Normal display Close: Highlighted
PD1 - 7	Document detection sensor status	No document: Normal display Document present: Highlighted

SIMULATION 41-1
PD SENSOR CHECK..
OCSW PD1 PD2 PD3 PD4 PD5 PD6 PD7

41-3

Purpose	Operation test/Check
Function (Purpose)	Used to check the operation of the document size sensor and the related circuit. (The document size sensor output level can be monitored with the LCD display.)
Section	Other
Item	Operation

Operation/Procedure

The detection output level (A/D value) of the document sensors (PD1 - PD7) is displayed in real time.

* The value in [] on the side of each sensor name indicates the threshold value.

The light receiving value (A/D value) and the threshold value (A/D value) of PD1 - PD7 are in the range of 1 - 255. The default of threshold value is 128.

OCSW	Original cover status	Open: Normal display Close: Highlighted
PD1 - 7	PD sensor detection level	The value in [] indicates the adjustment threshold value (SIM41-2 adjustment value).

SIMULATION 41-3

PD SENSOR DATA DISPLAY.

OCSW

PD1[128]: 200 PD2[128]: 200
PD3[128]: 50 PD4[128]: 52
PD5[128]: 51 PD6[128]: 50
PD7[128]: 52

SIMULATION 44-1

PROCESS CORRECTION VALUE SETTING. INPUT VALUE 0-255
AND PRESS START.

BIT0:Vg1, BIT1:Ld1, BIT2:Vg2, BIT3:Ld2
BIT4:Vb1, Vb2
BIT5:Vg3, Vb3, Ld3
BIT6:Vbr
BIT7:Vg4, Vb4, Ld4

111

43

43-1

Purpose	Setting
Function (Purpose)	Used to set the fusing temperature in each operation mode.
Section	Fixing (Fusing)
Item	Operation

Operation/Procedure

- 1) Select the number corresponding to the setting mode with 10-key.
- 2) Press [START] key.
- 3) Enter the set value.
- 4) Press [START] key.

Item			Default
1	INSIDE NORMAL	Heater inside/normal	190
2	OUTSIDE NORMAL	Heater outside/normal	190
3	INSIDE PREHEAT	Heater inside/preheat	150
4	OUTSIDE PREHEAT	Heater outside/preheat	150

SIMULATION 43-1

FUSER TEMPERATURE SET. SELECT 1-4, AND PRESS START.

1. INSIDE NORMAL 190
2. OUTSIDE NORMAL 190
3. INSIDE PREHEAT 150
4. OUTSIDE PREHEAT 150

1

Press [START] key.

Press [SYSTEM SETTINGS] key.

SIMULATION 43-1

FUSER TEMPERATURE SET. INPUT VALUE, AND PRESS START.

1. INSIDE NORMAL

190

44

44-1

Purpose	Setting
Function (Purpose)	Used to set enable/disable of correction operations in the image forming (process) section.
Section	Image process (Photoconductor/Developing/Transfer/Cleaning)
Item	Operation

Operation/Procedure

When bit =1, correction is made.

Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
	0	0	0	0	0	0	0	0	Vg4 Vb4 Ld4	Vbr	Vg3 Vb3 Ld3	Vb1 Vb2	Ld2	Vg2	Ld1	Vg1

44-4

Purpose	Setup
Function (Purpose)	Used to set the target image (reference) density level in the developing bias voltage correction.
Section	Process (Photoconductor/Developing/Transfer/Cleaning)
Item	Data

Operation/Procedure

- 1) Select the number corresponding to the setting mode with 10-key.
- 2) Press [START] key.
- 3) Enter the set value.
- 4) Press [START] key.

Item		
1	TEMP. AREA *1	Process environment temperature forcible setting value (0 - 13 /normal: 0)
2	HUMIDITY AREA *1	Process environment humidity forcible setting value (0 - 14 /normal: 0)
3	S_WT	Vb rising correction standby time (0 - 180 sec/default: 90)
4	Vb1	Vb correction amount (first rotation) (0 - 150V/default: 50)
5	Vb2	Vb correction amount (second rotation) (0-50V/default: 15)

*1: Only when this value is 0, control is made with the actual measurement value of the process thermistor (temperature/humidity). When it is not 0, control is made with the forcible setting value.

SIMULATION 44-4

PROCESS CONTROL VALUE SETTING. SELECT 1-5 AND PRESS START.

1. TEMP. AREA 0
2. HUMIDITY AREA 0
3. S_WT 90
4. Vb1 50
5. Vb2 15

3

Press [START] key.

Press [SYSTEM SETTINGS] key.

SIMULATION 44-4

PROCESS CONTROL VALUE SETTING. INPUT VALUE, AND PRESS START.

3. S_WT

90

44-9	
Purpose	Adjustment/Setup/Operation data output/Check (Display/Print)
Function (Purpose)	Used to check the data related to the image forming section correction (process correction) result (corrected main charger grid voltage, the developing bias voltage, and the laser power voltage in each print mode). (This simulation allows to check that correction is performed normally or not.)
Section	Image process (Photoconductor/Developing/Transfer/Cleaning)
Item	Data Operation data (Machine condition)

Operation/Procedure

DRUM ROTATION TIME	Drum rotation time (sec)
DEVE ROTATION TIME	Developer rotation time (sec)
Vg1 - Vg4	Grid voltage correction value
Vb1 - Vb4	Developing bias correction value
Ld1 - Ld4	Laser power correction value
DESTINATION 1	Machine CRUM destination (1-9)
DESTINATION 2	CRUM destination (1-9)

```

SIMULATION 44-9
PROCESS CONTROL DATA DISPLAY.
DRUM ROTATION TIME: 01234567(sec)
DEVE ROTATION TIME: 01234567(sec)
Vg1: 30(V) Vg2: 30(V) Vg3: 30(V) Vg4: 30(V)
Vb1: 30(V) Vb2: 10(V) Vb3: 30(V) Vb4: 10(V)
Ld1: 0 Ld2: 0 Ld3: 0 Ld4: 0
DESTINATION1: 1
DESTINATION2: 1

```

44-14	
Purpose	Adjustment/Setup/Operation data output/Check (Display)
Function (Purpose)	Used to check the output level of the temperature sensor and the humidity sensor.
Section	Image process (Photoconductor/Developing)
Item	Operation

Operation/Procedure

The output levels of the temperature thermistor and the humidity thermistor in the developing unit are displayed.

TH-DV	Developing temperature thermistor	0 - 255
HUS-DV	Developing humidity thermistor	0 - 255

```

SIMULATION 44-14
SENSOR DATA DISPLAY MONITOR.
TH-DV: 255
HUS-DV: 255

```

44-16	
Purpose	Adjustment/Setup/Operation data output/Check (Display)
Function (Purpose)	Used to check the toner concentration control data.
Section	Image process (Developing)
Item	Operation

Operation/Procedure

HUMIDITY AREA	Humidity area
INT HUMIDITY AREA	Humidity area in development adjustment
TEMPERATURE AREA	Temperature area
INT TEMPERATURE AREA	Temperature area in development adjustment
TARGET LEVEL	Toner control reference value

DEV REF	Development adjustment registration value
HUM (TARGET)	Humidity correction value
TMP (TARGET)	Temperature correction value
LIFE (TARGET)	Environment correction value
	Target value of humidity correction
	Target value of temperature correction
	Target value of environment correction

```

SIMULATION 44-16
TONER CONTROL STANDARD LEVEL DISPLAY.
HUMIDITY AREA: 11
INT HUMIDITY AREA: 7
TEMPERATURE AREA: 6
INT TEMPERATURE AREA: 6
TARGET LEVEL=DEV REF+HUM(TARGET)+TMP(TARGET)+LIFE(TARGET)
133 = 118 + 10(10) + 0(0) + 5(5)

```

46

46-2	
Purpose	Adjustment
Function (Purpose)	Used to adjust the copy density in all the copy modes (Auto, Text, Text/Photo, and Photo mode).
Item	Picture quality Density

Operation/Procedure

- 1) Select the number corresponding to the copy mode to be adjusted with 10-key. (Select one of 3 - 6.)
- 2) Press [START] key.
- 3) Enter the copy density level with 10-key.

Item			Set range	Default
0	TRAY SELECT	Paper feed tray selection	0 - 99	50
1	COPY START	Copy START (Default)		
2	EXP LEVEL	Exposure level selection		
3	AE 3.0	AE mode		
4	CH 3.0	Text mode 3.0		
5	MIX 3.0	Text/Photo mode 3.0		
6	PHOTO 3.0	Photo mode 3.0		

- 4) Press P key or [START] key.
The adjustment value is set.
When [START] key is pressed, copying is performed and the adjustment value is simultaneously set.
Check the density of the printed copy image.

Normal display	NOW COPYING.	
ERROR display	Door open	DOOR OPEN.
	Jam	JAM
	Paper empty	PAPER EMPTY.

NOTE: When the copy image density is adjusted with this simulation, the copy image densities of all the copy modes are changed to the copy image density level set with this simulation.

That is, the copy image density of each copy mode set with SIM 46-9, 10, 11 is changed to the copy image density level adjusted with this simulation.

To select paper (paper feed tray), perform the following procedures.

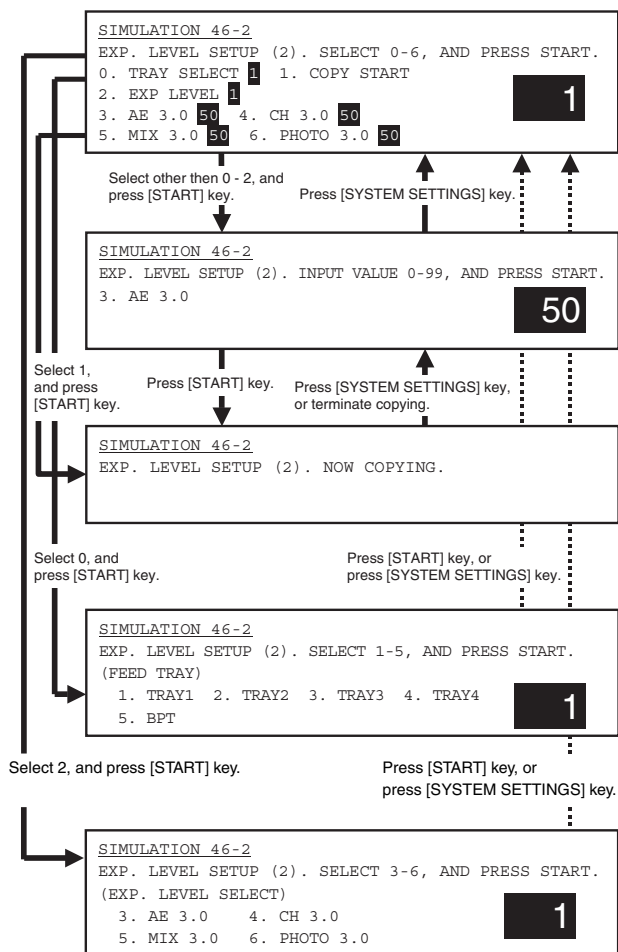
- 1) Enter 0 with 10-key.
- 2) Press [START] key. (The mode is changed to the paper feed tray selection mode.)

3) Enter the number corresponding to the paper feed tray to be used with 10-key.

4) Press [START] key. (The paper feed tray is selected.)

1	TRAY1	TRAY1
2	TRAY2	TRAY2
3	TRAY3	TRAY3
4	TRAY4	TRAY4
5	BPT	Manual feed

NOTE: When [P] key is pressed after entering an adjustment value in this simulation, the adjustment value is set. When START key is pressed, the adjustment value is set and copying is performed.



46-9

Purpose	Adjustment
Function (Purpose)	Used to adjust the print density for each density level (display value) in the copy mode (binary - Text mode). An optional print density can be set for each density level (display value).
Item	Picture quality Density

Operation/Procedure

- 1) Select the number corresponding to the copy density adjustment level with 10-key. (Select one of 3 - 11.)
- 2) Press [START] key.
- 3) Enter the copy density level with 10-key.

Item			Set range	Default
0	TRAY SELECT	Paper feed tray selection	0 - 99	50
1	COPY START	Copy START (Default)		
2	EXP LEVEL	Exposure level selection		
3	1.0	Exposure level 1.0		
4	1.5	Exposure level 1.5		
5	2.0	Exposure level 2.0		
6	2.5	Exposure level 2.5		
7	3.0	Exposure level 3.0		
8	3.5	Exposure level 3.5		
9	4.0	Exposure level 4.0		
10	4.5	Exposure level 4.5		
11	5.0	Exposure level 5.0		

- 4) Press [P] key or [START] key.
The adjustment value is set.
When [START] key is pressed, copying is performed and the adjustment value is set simultaneously.
Check the density of printed copy image.

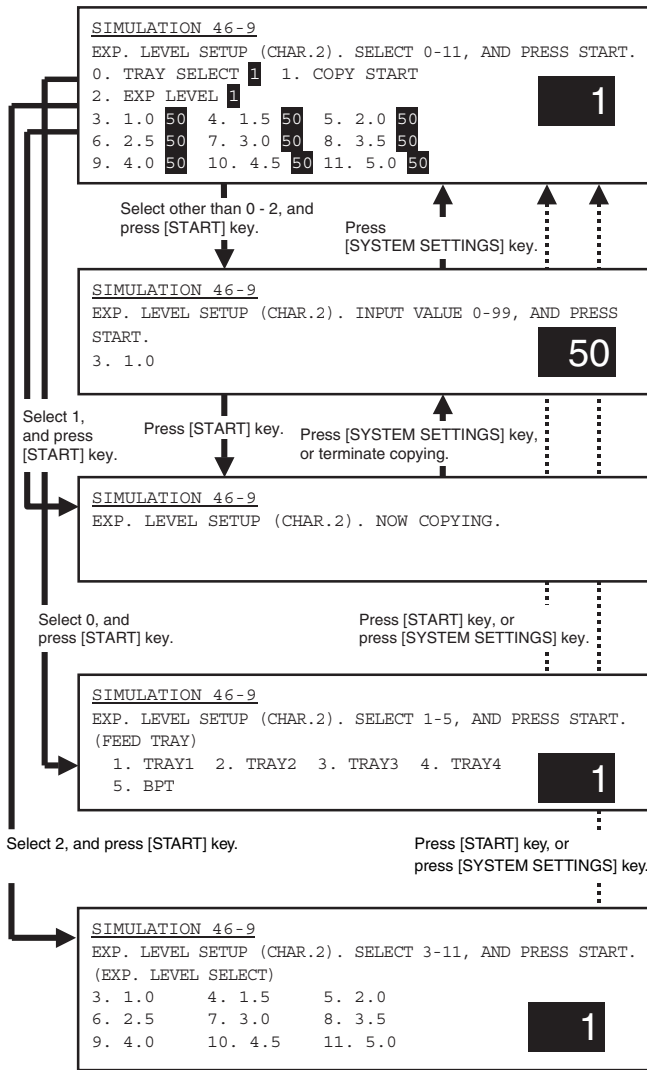
Normal display		NOW COPYING.
ERROR display	Door open	DOOR OPEN.
	Jam	JAM
	Paper empty	PAPER EMPTY.

To select paper (paper feed tray), perform the following procedures.

- 1) Enter 0 with 10-key.
- 2) Press [START] key. (The mode is changed to the paper feed tray selection mode.)
- 3) Enter the number corresponding to the paper feed tray to be used with 10-key.
- 4) Press [START] key. (The paper feed tray is selected.)

1	TRAY1	TRAY1
2	TRAY2	TRAY2
3	TRAY3	TRAY3
4	TRAY4	TRAY4
5	BPT	Manual feed

NOTE: When [P] key is pressed after entering an adjustment value in this simulation, the adjustment value is set. When START key is pressed, the adjustment value is set and copying is performed.



46-10

Purpose	Adjustment
Function (Purpose)	Used to adjust the print density for each density level (display value) in the copy mode (binary - Text/Photo mode). An optional print density can be set for each density level (display value).
Item	Picture quality

Operation/Procedure

- 1) Select the number corresponding to the copy density adjustment level with 10-key. (Select one of 3 - 11.)
- 2) Press [START] key.
- 3) Enter the copy density level with 10-key.

Item			Set range	Default
0	TRAY SELECT	Paper feed tray selection	0 - 99	50
1	COPY START	Copy START (Default)		
2	EXP LEVEL	Exposure level selection		
3	1.0	Exposure level 1.0		
4	1.5	Exposure level 1.5		
5	2.0	Exposure level 2.0		
6	2.5	Exposure level 2.5		
7	3.0	Exposure level 3.0		
8	3.5	Exposure level 3.5		
9	4.0	Exposure level 4.0		
10	4.5	Exposure level 4.5		
11	5.0	Exposure level 5.0		

- 4) Press [P] key or [START] key.
The adjustment value is set.
When [START] key is pressed, copying is performed and the adjustment value is set simultaneously.
Check the density of printed copy image.

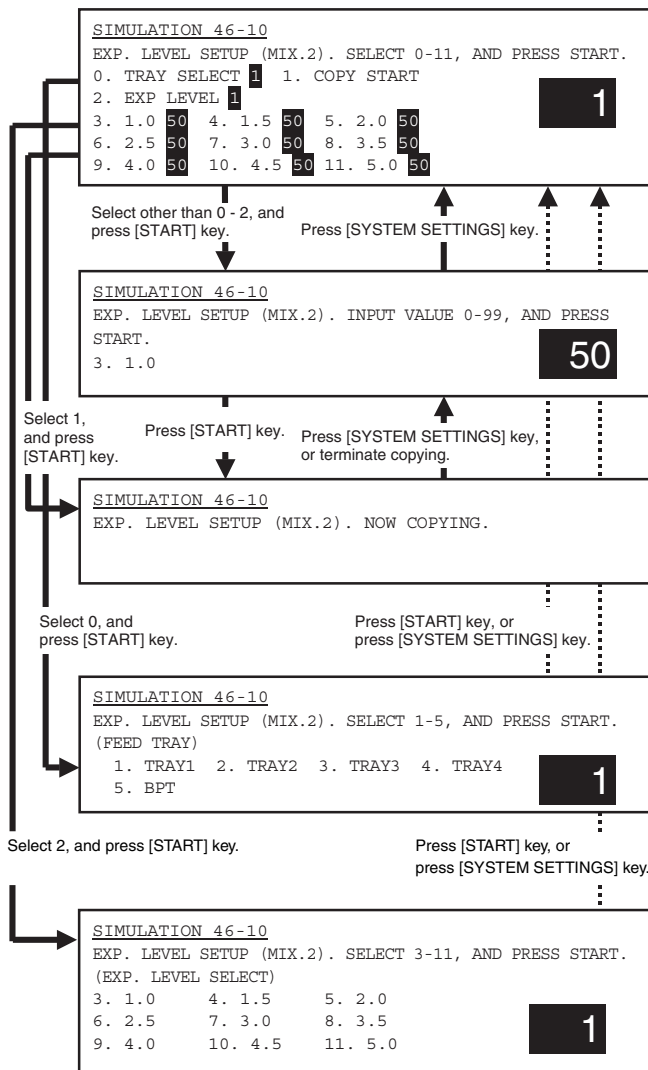
Normal display		NOW COPYING.
ERROR display	Door open	DOOR OPEN.
	Jam	JAM
	Paper empty	PAPER EMPTY.

To select paper (paper feed tray), perform the following procedures.

- 1) Enter 0 with 10-key.
- 2) Press [START] key. (The mode is changed to the paper feed tray selection mode.)
- 3) Enter the number corresponding to the paper feed tray to be used with 10-key.
- 4) Press [START] key. (The paper feed tray is selected.)

1	TRAY1	TRAY1
2	TRAY2	TRAY2
3	TRAY3	TRAY3
4	TRAY4	TRAY4
5	BPT	Manual feed

NOTE: When [P] key is pressed after entering an adjustment value in this simulation, the adjustment value is set. When START key is pressed, the adjustment value is set and copying is performed.



46-11

Purpose	Adjustment
Function (Purpose)	Used to adjust the print density for each density level (display value) in the copy mode (binary - Photo mode). An optional print density can be set for each density level (display value).
Item	Picture quality Density

Operation/Procedure

- 1) Select the number corresponding to the copy density adjustment level with 10-key. (Select one of 3 - 11.)
- 2) Press [START] key.
- 3) Enter the copy density level with 10-key.

Item			Set range	Default
0	TRAY SELECT	Paper feed tray selection	0 - 99	50
1	COPY START	Copy START (Default)		
2	EXP LEVEL	Exposure level selection		
3	1.0	Exposure level 1.0		
4	1.5	Exposure level 1.5		
5	2.0	Exposure level 2.0		
6	2.5	Exposure level 2.5		
7	3.0	Exposure level 3.0		
8	3.5	Exposure level 3.5		
9	4.0	Exposure level 4.0		
10	4.5	Exposure level 4.5		
11	5.0	Exposure level 5.0		

- 4) Press [P] key or [START] key.
The adjustment value is set.
When [START] key is pressed, copying is performed and the adjustment value is set simultaneously.
Check the density of printed copy image.

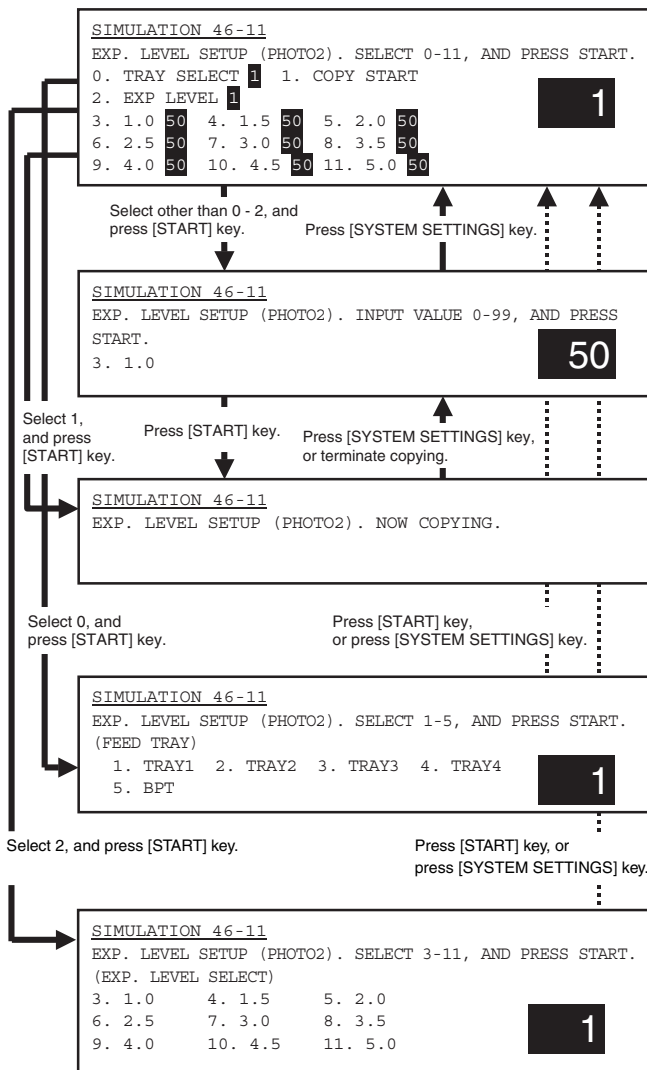
Normal display		NOW COPYING.
ERROR display	Door open	DOOR OPEN.
	Jam	JAM
	Paper empty	PAPER EMPTY.

To select paper (paper feed tray), perform the following procedures.

- 1) Enter 0 with 10-key.
- 2) Press [START] key. (The mode is changed to the paper feed tray selection mode.)
- 3) Enter the number corresponding to the paper feed tray to be used with 10-key.
- 4) Press [START] key. (The paper feed tray is selected.)

1	TRAY1	TRAY1
2	TRAY2	TRAY2
3	TRAY3	TRAY3
4	TRAY4	TRAY4
5	BPT	Manual feed

NOTE: When [P] key is pressed after entering an adjustment value in this simulation, the adjustment value is set. When START key is pressed, the adjustment value is set and copying is performed.



46-12

Purpose	Adjustment
Function (Purpose)	Used to adjust the print density in the FAX mode (all modes).
Item	Picture quality

Operation/Procedure

- 1) Select the adjustment item of FAX EXP. LEVEL with 10-key.
- 2) Press [START] key.
- 3) Enter the print density level with 10-key.

	Item		Set range	Default
0	TRAY SELECT	Paper feed tray selection		
1	COPY START	Copy START (Default)		
2	FAX EXP. LEVEL	FAX mode print density	0 - 99	50

- 4) Press [P] key or [START] key.

The adjustment value is set.

When [START] key is pressed, printing is performed and the adjustment value is set simultaneously.

Check the density of printed image.

Normal display		NOW PRINTING.
ERROR display	Door open	DOOR OPEN.
	Jam	JAM
	Paper empty	PAPER EMPTY.

NOTE: When the FAX print image density is adjusted with this simulation, the print image densities of all the FAX modes are changed to the image density level set with this simulation.

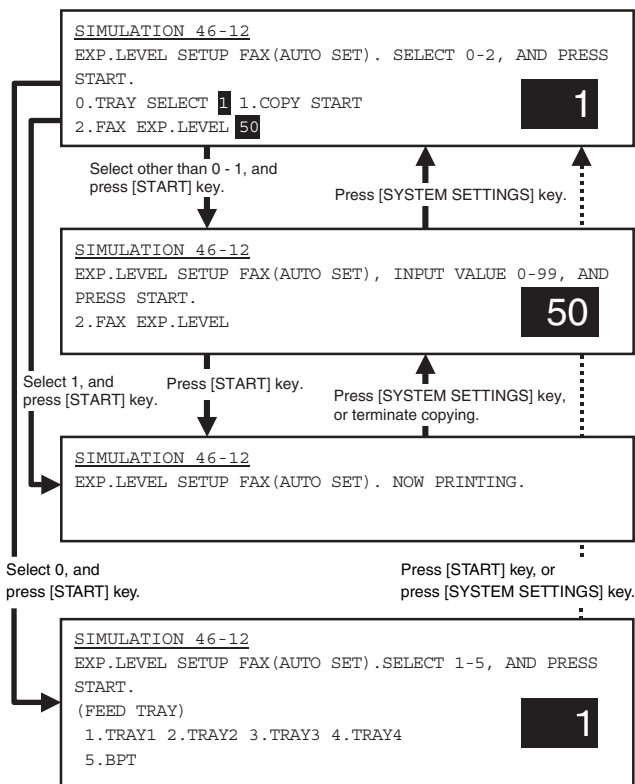
That is, the print image density of each FAX mode set with SIM 46-13, 14, 15 is changed to the print image density level adjusted with this simulation.

To select paper (paper feed tray), perform the following procedures.

- 1) Enter 0 with 10-key.
- 2) Press [START] key. (The mode is changed to the paper feed tray selection mode.)
- 3) Enter the number corresponding to the paper feed tray to be used with 10-key.
- 4) Press [START] key. (The paper feed tray is selected.)

1	TRAY1	TRAY1
2	TRAY2	TRAY2
3	TRAY3	TRAY3
4	TRAY4	TRAY4
5	BPT	Manual feed

NOTE: When [P] key is pressed after entering an adjustment value in this simulation, the adjustment value is set. When START key is pressed, the adjustment value is set and copying is performed.



Purpose	Adjustment
Function (Purpose)	Used to adjust the print density in the FAX mode (each normal mode). (Only when FAX is installed.)
Item	Picture quality

Operation/Procedure

- 1) Select the number corresponding to one of the following adjustment items with 10-key.
 - * Manual mode (Print density adjustment level)
 - * Auto mode
- 2) Press [START] key.
- 3) Enter the print density level with 10-key.

	Item	Set range	Default
0	TRAY SELECT	Paper feed tray selection	
1	PRINT START	Print start (Default)	
2	EXP LEVEL	Exposure level selection	
3	AUTO	Auto	0 - 99 50
4	1.0	Exposure level 1	
5	2.0	Exposure level 2	
6	3.0	Exposure level 3	
7	4.0	Exposure level 4	
8	5.0	Exposure level 5	

- 4) Press [P] key or [START] key.
The adjustment value is set.
When [START] key is pressed, printing is performed and the adjustment value is set simultaneously.
Check the density of printed image.

Normal display		NOW PRINTING.
ERROR display	Door open	DOOR OPEN.
	Jam	JAM
	Paper empty	PAPER EMPTY.

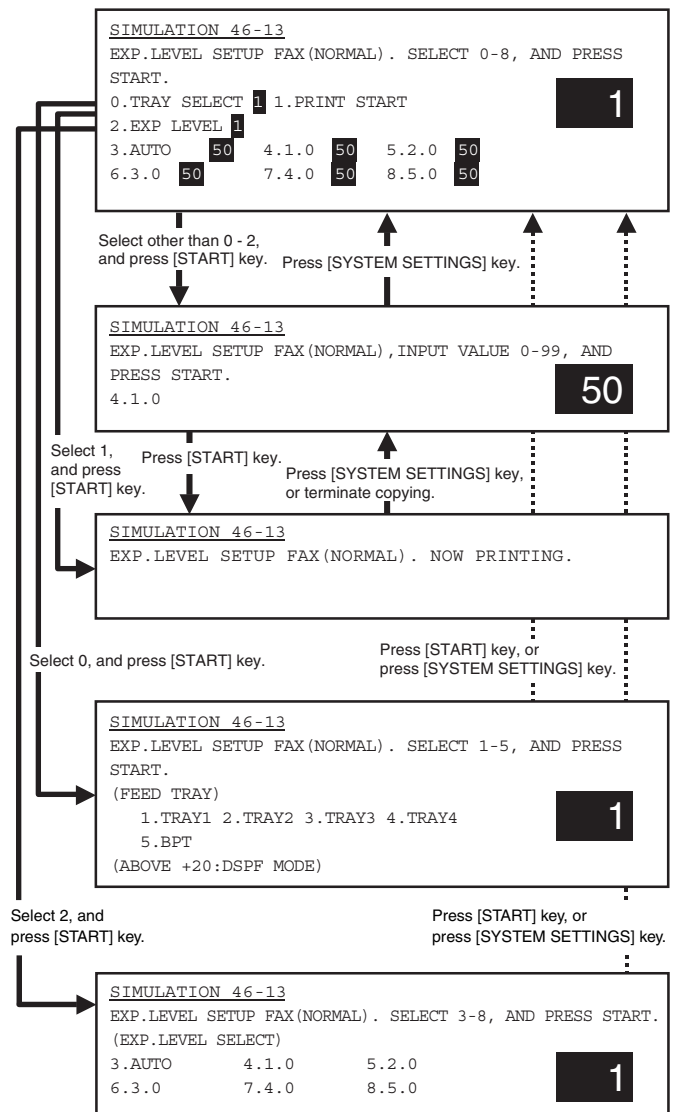
To select paper (paper feed tray), perform the following procedures.

- 1) Enter 0 with 10-key.
- 2) Press [START] key. (The mode is changed to the paper feed tray selection mode.)
- 3) Enter the number corresponding to the paper feed tray to be used with 10-key.
- 4) Press [START] key. (The paper feed tray is selected.)

1	TRAY1	TRAY1
2	TRAY2	TRAY2
3	TRAY3	TRAY3
4	TRAY4	TRAY4
5	BPT	Manual feed

When the sum of the above set value (1 - 5) and 20 is set, the mode is changed to the duplex print mode.

NOTE: When [P] key is pressed after entering an adjustment value in this simulation, the adjustment value is set. When START key is pressed, the adjustment value is set and copying is performed.



Purpose	Adjustment
Function (Purpose)	Used to adjust the print density in the FAX mode (each fine mode). (Only when FAX is installed.)
Item	Picture quality

Operation/Procedure

- Select the number corresponding to one of the following adjustment items with 10-key. (Select one of 3 - 14.)
 - * Normal mode (Print density adjustment level)
 - * Normal mode (Print density adjustment level) (Half-tone mode)
 - * Auto mode
 - * Auto mode (Half-tone mode)
- Enter the print density level with 10-key.

Item			Set range	Default
0	TRAY SELECT	Paper feed tray selection	0 - 99	50
1	PRINT START	Print start (Default)		
2	EXP LEVEL	Exposure level selection		
3	AUTO	Auto		
4	1.0	Exposure level 1		
5	2.0	Exposure level 2		
6	3.0	Exposure level 3		
7	4.0	Exposure level 4		
8	5.0	Exposure level 5		
9	AUTO (H)	Auto (Half-tone)		
10	1.0 (H)	Exposure level 1 (Half-tone)		
11	2.0 (H)	Exposure level 2 (Half-tone)		
12	3.0 (H)	Exposure level 3 (Half-tone)		
13	4.0 (H)	Exposure level 4 (Half-tone)		
14	5.0 (H)	Exposure level 5 (Half-tone)		

- Press [P] key or [ATART] key.
The entered value is set.
When [START] key is pressed, printing is performed and the adjustment value is set simultaneously.
Check the density of print image.

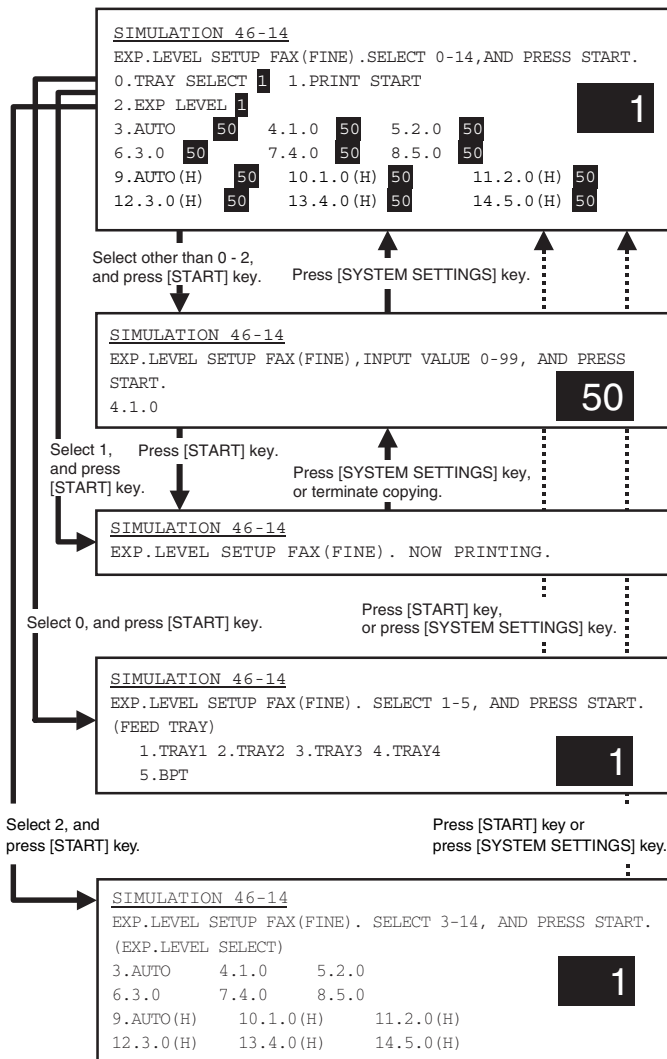
Normal display		NOW PRINTING.
ERROR display	Door open	DOOR OPEN.
	Jam	JAM
	Paper empty	PAPER EMPTY.

To select paper (paper feed tray), perform the following procedures.

- Enter 0 with 10-key.
- Press [START] key. (The mode is changed to the paper feed tray selection mode.)
- Enter the number corresponding to the paper feed tray to be used with 10-key.
- Press [START] key. (The paper feed tray is selected.)

1	TRAY1	TRAY1
2	TRAY2	TRAY2
3	TRAY3	TRAY3
4	TRAY4	TRAY4
5	BPT	Manual feed

NOTE: When [P] key is pressed after entering an adjustment value in this simulation, the adjustment value is set. When [START] key is pressed, the adjustment value is set and copying is performed.



Purpose	Adjustment
Function (Purpose)	Used to adjust the print density in the FAX mode (each ultra fine mode). (Only when FAX is installed.)
Item	Picture quality

Operation/Procedure

- Select the number corresponding to one of the following adjustment items with 10-key. (Select one of 3 - 14.)
 - * Normal mode (Print density adjustment level)
 - * Normal mode (Print density adjustment level) (Half-tone mode)
 - * Auto mode
 - * Auto mode (Half-tone mode)
- Press [START] key.
- Enter the print density level with 10-key.

	Item	Set range	Default
0	TRAY SELECT	Paper feed tray selection	
1	PRINT START	Print start (Default)	
2	EXP LEVEL	Exposure level selection	
3	AUTO	Auto	0 - 99 50
4	1.0	Exposure level 1	
5	2.0	Exposure level 2	
6	3.0	Exposure level 3	
7	4.0	Exposure level 4	
8	5.0	Exposure level 5	
9	AUTO (H)	Auto (Half-tone)	
10	1.0 (H)	Exposure level 1 (Half-tone)	
11	2.0 (H)	Exposure level 2 (Half-tone)	
12	3.0 (H)	Exposure level 3 (Half-tone)	
13	4.0 (H)	Exposure level 4 (Half-tone)	
14	5.0 (H)	Exposure level 5 (Half-tone)	

- Press [P] key or [START] key.
The entered value is set.
When [START] key is pressed, printing is performed and the adjustment value is set simultaneously.
Check the density of print image.

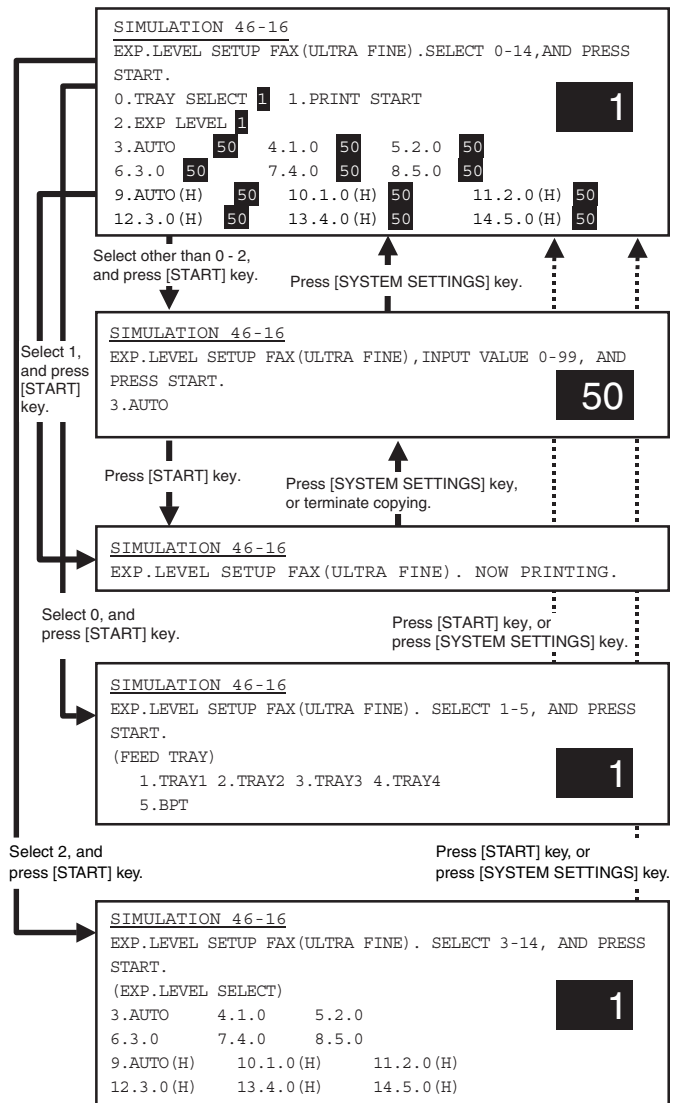
Normal display	NOW PRINTING.	
ERROR display	Door open	DOOR OPEN.
	Jam	JAM
	Paper empty	PAPER EMPTY.

To select paper (paper feed tray), perform the following procedures.

- Enter 0 with 10-key.
- Press [START] key. (The mode is changed to the paper feed tray selection mode.)
- Enter the number corresponding to the paper feed tray to be used with 10-key.
- Press [START] key. (The paper feed tray is selected.)

1	TRAY1	TRAY1
2	TRAY2	TRAY2
3	TRAY3	TRAY3
4	TRAY4	TRAY4
5	BPT	Manual feed

NOTE: When [P] key is pressed after entering an adjustment value in this simulation, the adjustment value is set. When START key is pressed, the adjustment value is set and copying is performed.



Purpose	Setting
Function (Purpose)	Used to set the gain in shading correction.
Section	Optical (Image scanning) CCD, CIS
Item	Operation

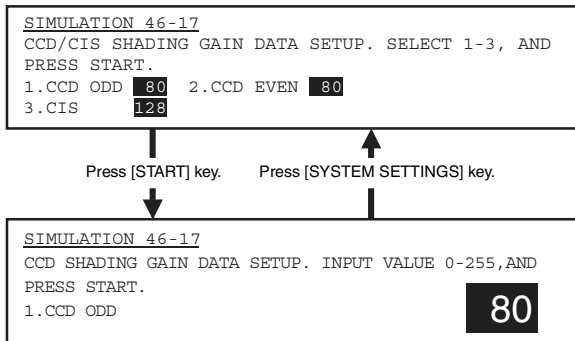
Operation/Procedure

- Enter the number corresponding to the adjustment item
- Press [START] key.
- Enter the shading gain change value with 10-key.
- Press [START] key.

There is normally no need to change the shading gain with this simulation.

Only when the scanned image density is unsatisfactory though shading is performed, the above procedure is performed.

	Item	Set range	Default
1	CCD ODD	0 - 255	80
2	CCD EVEN		
3	CIS		128



46-18

Purpose	Adjustment
Function (Purpose)	Used to adjust the gamma (density gradient) in the copy mode.
Item	Picture quality Density

Operation/Procedure

(Copy mode selection)

- 1) Select the number corresponding to the copy mode to be adjusted with 10-key. (Select one of 3 - 18.)
- 2) Press [START] key.

(Print mode selection in the FAX mode)

- 1) Enter 2 with 10-key.
- 2) Press [START] key.
- 3) Select the number corresponding to one of the following adjustment items. (Select one of 3 - 14.)
 - * Normal mode (Print density adjustment level)
 - * Normal mode (Print density adjustment level) (Half-tone mode)
 - * Auto mode
 - * Auto mode (Half-tone mode)

Item		Set range	Default
0	TRAY SELECT	Paper feed tray selection	
1	PRINT START	Print start (Default)	
2	EXP LEVEL	Exposure level selection	
3	OC_AE	AE mode (OC)	0 - 127 64
4	OC_CHARA	Text mode (OC)	
5	OC_MIX	Text/Photo mode (OC)	
6	OC_PHOTO	Photo mode (OC)	
7	SPF1_AE	AE mode (SPF1)	
8	SPF1_CHARA	Text mode (SPF1)	
9	SPF1_MIX	Text/Photo mode (SPF1)	
10	SPF1_PHOTO	Photo mode (SPF1)	
11	SPF2_AE	AE mode (SPF2)	
12	SPF2_CHARA	Text mode (SPF2)	
13	SPF2_MIX	Text/Photo mode (SPF2)	
14	SPF2_PHOTO	Photo mode (SPF2)	
15	CIS_AE	AE mode (CIS)	
16	CIS_CHARA	Text mode (CIS)	
17	CIS_MIX	Text/Photo mode (CIS)	
18	CIS_PHOTO	Photo mode (CIS)	

Exposure level

Item		
3	AUTO	Auto
4	1.0	Exposure level 1
5	2.0	Exposure level 2
6	3.0	Exposure level 3
7	4.0	Exposure level 4
8	5.0	Exposure level 5
9	AUTO (H)	Auto (Half-tone)
10	1.0 (H)	Exposure level 1 (Half-tone)
11	2.0 (H)	Exposure level 2 (Half-tone)
12	3.0 (H)	Exposure level 3 (Half-tone)
13	4.0 (H)	Exposure level 4 (Half-tone)
14	5.0 (H)	Exposure level 5 (Half-tone)

- 4) Press [START] key.

Normal display		NOW PRINTING.
ERROR display	Door open	DOOR OPEN.
	Jam	JAM
	Paper empty	PAPER EMPTY.

(Gamma adjustment)

After completion of the above procedures, perform the following procedures.

- 1) Enter the gamma level with 10-key.
- 2) Enter [P] key or [START] key.

When [START] key is pressed, printing is performed and the adjustment value is set simultaneously.

Check the gamma density (copy density in the low density area and the high density area) of printed copy image. The greater the adjustment value is, the greater the gamma value is, resulting in a higher contrast.

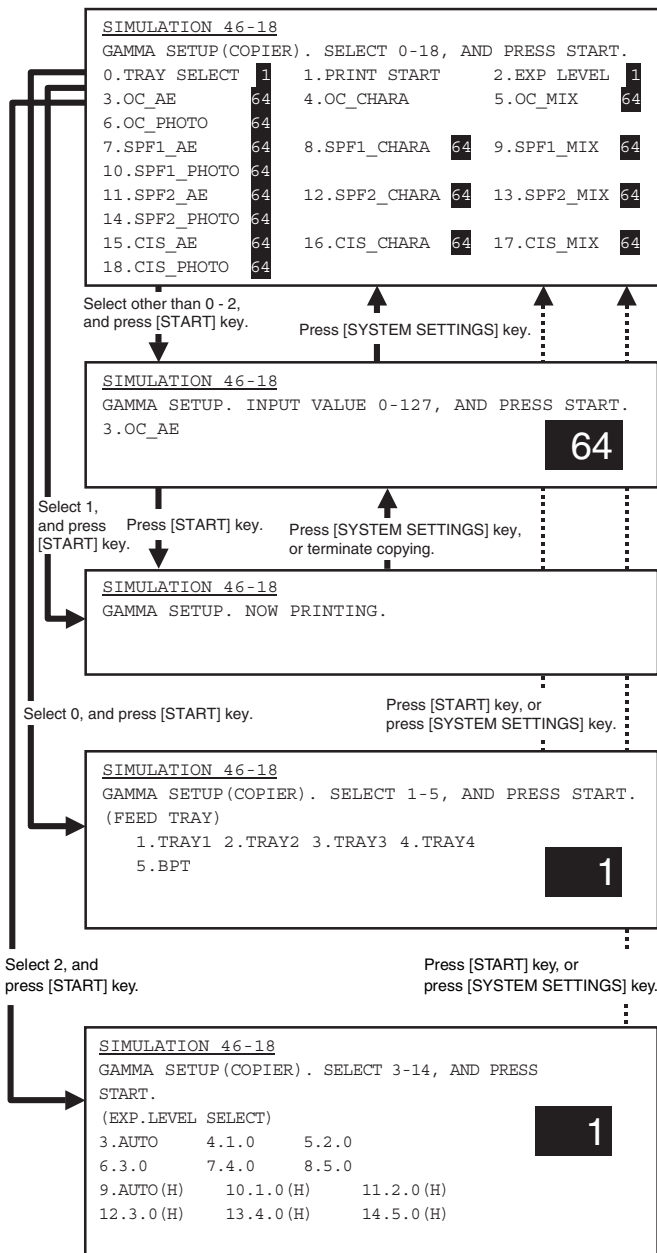
(Copy condition setting in this simulation)

To select paper (paper feed tray), perform the following procedures.

- 1) Enter 0 with 10-key.
- 2) Press [START] key. (The mode is changed to the paper feed tray selection mode.)
- 3) Enter the number corresponding to the paper feed tray to be used with 10-key.
- 4) Press [START] key. (The paper feed tray is selected.)

1	TRAY1	TRAY1
2	TRAY2	TRAY2
3	TRAY3	TRAY3
4	TRAY4	TRAY4
5	BPT	Manual feed

NOTE: When [P] key is pressed after entering an adjustment value in this simulation, the adjustment value is set. When START key is pressed, the adjustment value is set and copying is performed.



46-19

Purpose	Adjustment
Function (Purpose)	Used to set the auto mode operation specifications in each mode (copy, scan, FAX).
Item	Picture quality Density

Operation/Procedure

(Toner save operation YES/NO setting in the auto mode)

- 1) Select "1. AE MODE" with 1-key.
 - 2) Press [START] key.
 - 3) Select the number corresponding to the operation specifications with 10-key.
 - 4) Press [START] key.
- When [START] key is pressed, the adjustment value is set.

(Operation setting in the auto copy mode)

- 1) Select the number corresponding to the mode with 10-key. (Select one of 2 - 4.)
- 2) Press [START] key.
- 3) Select the number corresponding to the operation mode with 10-key.

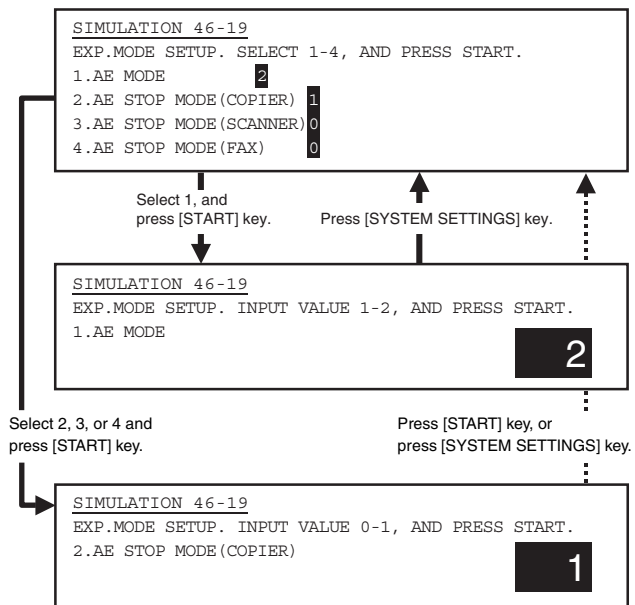
4) Press [START] key.

1	AE MODE	AE mode
2	AE STOP MODE (COPIER)	AE fixed mode (Copier)
3	AE STOP MODE (SCANNER)	AE fixed mode (Scanner)
4	AE STOP MODE (FAX)	AE fixed mode (FAX)

Mode	Set value	Item	Default
AE mode	1	Image quality priority mode (Normal mode) * Gamma is sharp to provide high contrast images.	2
	2	Toner consumption priority mode * Gamma is mild to provide low contrast images.	
AE fixed mode	0	AE fixed OFF	1 (COPIER) 0 (SCANNER/FAX)
	1	AE fixed ON	

AE fixed OFF: The automatic density (exposure) control is performed in real time. (The density level is changed in real time according to the document pattern.)

AE fixed ON: The density at the lead edge of the document is scanned, and the overall density (exposure) level is determined according to the scanned density level. (Overall density level fixed)



Purpose	Adjustment
Function (Purpose)	Used to adjust the copy density correction in the SPF copy mode for the document table copy mode. The adjustment is made so that the copy density becomes the same as that of the document table copy mode.
Section	SPF
Item	Picture quality Density

Operation/Procedure

(Adjustment mode selection)

- 1) Select the number corresponding to the copy mode to be adjusted with 10-key.
SPF odd pixel (Front surface copy), SPF even pixel (Front surface copy), SPF (Back surface copy) (Select one of 3 - 5.)

- 2) Press [SATART] key.

(Copy density level adjustment)

- 1) Enter the density correction value with 10-key.
- 2) Press [P] key or [START] key.

(Copy condition setting in this simulation)

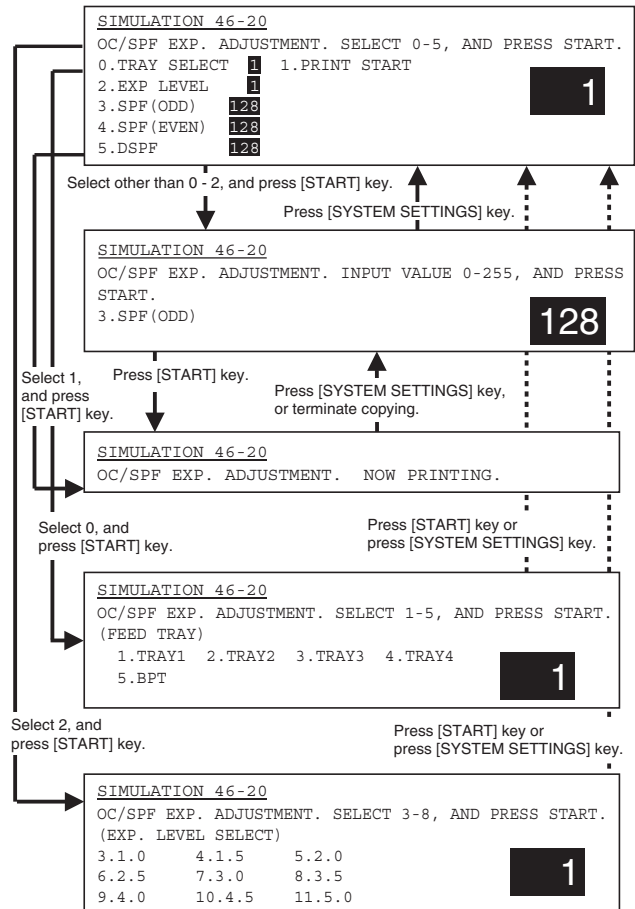
To select paper (paper feed tray), perform the following procedures.

- 1) Enter 0 with 10-key.
- 2) Press [START] key. (The mode is changed to the paper feed tray selection mode.)
- 3) Enter the number corresponding to the paper feed tray to be used with 10-key.
- 4) Press [START] key. (The paper feed tray is selected.)

NOTE: When [P] key is pressed after entering an adjustment value in this simulation, the adjustment value is set. When START key is pressed, the adjustment value is set and copying is performed.

Item	Content	Set range	Default
0 TRAY SELECT	Paper feed tray selection 1: TRAY1 2: TRAY2 3: TRAY3 4: TRAY4 5: Manual feed	—	—
1 PRINT START	Print start (Default)	—	—
2 EXP LEVEL	Exposure level selection 3: Exposure level 1.0 4: Exposure level 1.5 5: Exposure level 2.0 6: Exposure level 2.5 7: Exposure level 3.0 8: Exposure level 3.5 9: Exposure level 4.0 10: Exposure level 4.5 11: Exposure level 5.0	—	—
3 SPF (ODD)	SPF (front) (odd pixel)	0 - 255	128
4 SPF (EVEN)	SPF (front) (even pixel)		
5 DSPF	DSPF (Back surface)		

- "Set value - 128" is added to the shading adjustment value (SIM 46-17).



Purpose	Adjustment
Function (Purpose)	Used to adjust the scanner exposure level in all the scanner modes.
Item	Picture quality Density

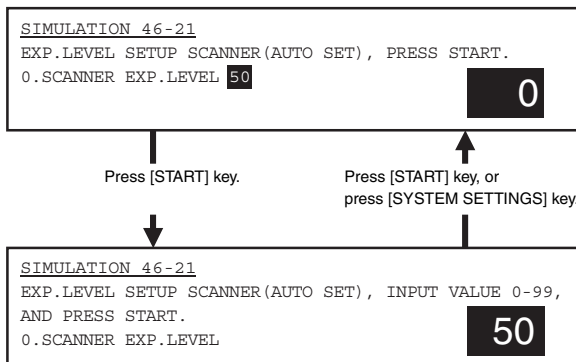
Operation/Procedure

- 1) Select "SCANNER EXP. LEVEL" with 10-key.
- 2) Press [START] key.
- 3) Enter the image density adjustment value.
- 4) Press [P] key or [START] key.

NOTE: When this simulation is performed to adjust the scan image densities, all the image densities in all the scan modes are changed to the image density level set with this simulation. That is, the image densities set with SIM 46-22, 23, 24, 25, and 45 are changed to the image density level set with this simulation.

Item	Set range	Default
0 SCANNER EXP. LEVEL	Image density level	50

NOTE: Only the set value is changed and no printing is performed.



46-22

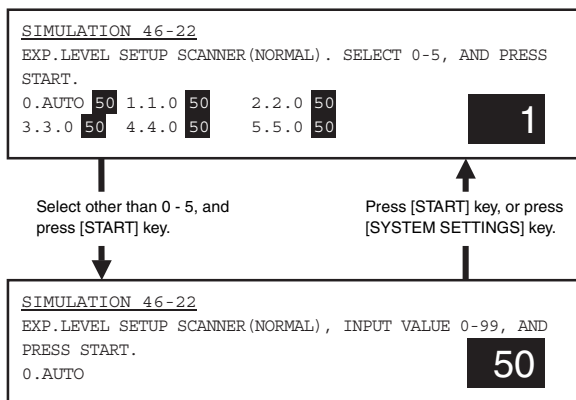
Purpose	Adjustment
Function (Purpose)	Used to adjust the scanner exposure level in the normal text mode.
Item	Picture quality Density

Operation/Procedure

- 1) Select the number corresponding to one of the following adjustment items with 10-key. (Select one of 0 - 5.)
 - * Normal mode (Image density adjustment level)
 - * Auto mode
- 2) Press [START] key.
- 3) Enter the image density adjustment value with 10-key.
- 4) Press [START] key or press [P] key.
The adjustment value is set.

Item			Set range	Default
0	AUTO	Auto	0 - 99	50
1	1.0	Exposure level 1		
2	2.0	Exposure level 2		
3	3.0	Exposure level 3		
4	4.0	Exposure level 4		
5	5.0	Exposure level 5		

NOTE: Only the set value is changed and no printing is performed.



46-23

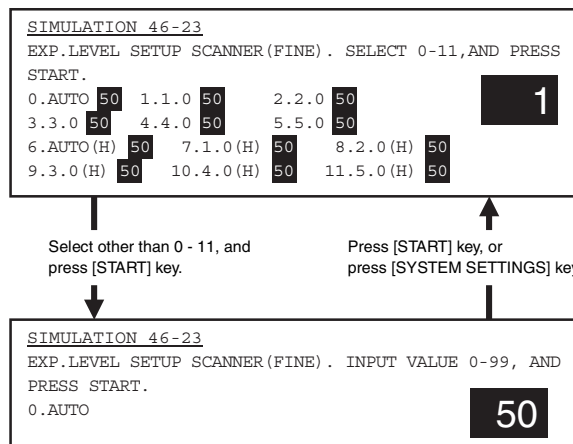
Purpose	Adjustment
Function (Purpose)	Used to adjust the scanner exposure level in the fine text mode.
Item	Picture quality Density

Operation/Procedure

- 1) Select the number corresponding to one of the following adjustment items with 10-key. (Select one of 0 - 11.)
 - * Normal mode (Image density adjustment level)
 - * Normal mode (Image density adjustment level) (Half-tone mode)
 - * Auto mode
 - * Auto mode (Half-tone mode)
- 2) Press [START] key.
- 3) Enter the image density adjustment value with 10-key.
- 4) Press [START] key or press [P] key.
The adjustment value is set.

Item			Set range	Default
0	AUTO	Auto	0 - 99	50
1	1.0	Exposure level 1		
2	2.0	Exposure level 2		
3	3.0	Exposure level 3		
4	4.0	Exposure level 4		
5	5.0	Exposure level 5		
6	AUTO (H)	Auto (Half-tone)		
7	1.0 (H)	Exposure level 1 (Half-tone)		
8	2.0 (H)	Exposure level 2 (Half-tone)		
9	3.0 (H)	Exposure level 3 (Half-tone)		
10	4.0 (H)	Exposure level 4 (Half-tone)		
11	5.0 (H)	Exposure level 5 (Half-tone)		

NOTE: Only the set value is changed and no printing is performed.



46-24

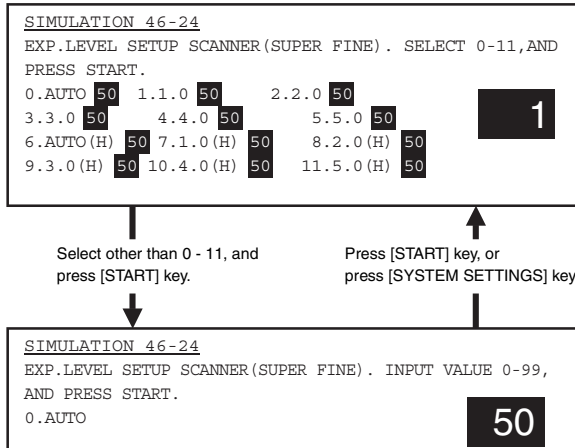
Purpose	Adjustment	
Function (Purpose)	Used to adjust the scanner exposure level in the super fine text mode.	
Item	Picture quality	Density

Operation/Procedure

- 1) Select the number corresponding to one of the following adjustment items with 10-key. (Select one of 0 - 11.)
 - * Normal mode (Image density adjustment level)
 - * Normal mode (Image density adjustment level) (Half-tone mode)
 - * Auto mode
 - * Auto mode (Half-tone mode)
- 2) Press [START] key.
- 3) Enter the image density adjustment value with 10-key.
- 4) Press [START] key or press [P] key.
The adjustment value is set.

Item			Set range	Default
0	AUTO	Auto	0 - 99	50
1	1.0	Exposure level 1		
2	2.0	Exposure level 2		
3	3.0	Exposure level 3		
4	4.0	Exposure level 4		
5	5.0	Exposure level 5		
6	AUTO (H)	Auto (Half-tone)		
7	1.0 (H)	Exposure level 1 (Half-tone)		
8	2.0 (H)	Exposure level 2 (Half-tone)		
9	3.0 (H)	Exposure level 3 (Half-tone)		
10	4.0 (H)	Exposure level 4 (Half-tone)		
11	5.0 (H)	Exposure level 5 (Half-tone)		

NOTE: Only the set value is changed and no printing is performed.



46-25

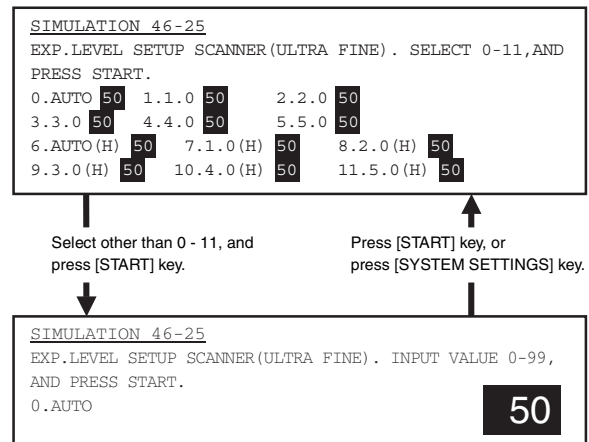
Purpose	Adjustment	
Function (Purpose)	Used to adjust the scanner exposure level in the ultra fine text mode.	
Item	Picture quality	Density

Operation/Procedure

- 1) Select the number corresponding to one of the following adjustment items with 10-key. (Select one of 0 - 11.)
 - * Normal mode (Image density adjustment level)
 - * Normal mode (Image density adjustment level) (Half-tone mode)
 - * Auto mode
 - * Auto mode (Half-tone mode)
- 2) Press [START] key.
- 3) Enter the image density adjustment value with 10-key.
- 4) Press [START] key or press [P] key.
The adjustment value is set.

Item			Set range	Default
0	AUTO	Auto	0 - 99	50
1	1.0	Exposure level 1		
2	2.0	Exposure level 2		
3	3.0	Exposure level 3		
4	4.0	Exposure level 4		
5	5.0	Exposure level 5		
6	AUTO (H)	Auto (Half-tone)		
7	1.0 (H)	Exposure level 1 (Half-tone)		
8	2.0 (H)	Exposure level 2 (Half-tone)		
9	3.0 (H)	Exposure level 3 (Half-tone)		
10	4.0 (H)	Exposure level 4 (Half-tone)		
11	5.0 (H)	Exposure level 5 (Half-tone)		

NOTE: Only the set value is changed and no printing is performed.



46-27

Purpose	Adjustment
Function (Purpose)	Used to adjust the gamma (density gradient) of the network scanner mode.
Item	Picture quality

Operation/Procedure

(Scanner mode selection)

- 1) Select the number corresponding to the scanner mode to be adjusted with 10-key. (Select one of 1 - 9.)
- 2) Press [START] key.

(Gamma adjustment)

- 1) Enter the gamma level with 10-key.
- 2) Press [START] key.

The greater the adjustment value is, the greater the gamma is, resulting in a higher contrast.

	Item	Set range	Default
1	OC_Fine.HT	0 - 127	64
2	OC_SFine.HT		
3	OC_UFine.HT		
4	SPF1_Fine.HT		
5	SPF1_SFine.HT		
6	SPF1_UFine.HT		
7	SPF2_Fine.HT		
8	SPF2_SFine.HT		
9	SPF2_UFine.HT		
10	CIS_Fine.HT		
11	CIS_SFine.HT		
12	CIS_UFine.HT		

SIMULATION 46-27

GAMMA SETUP(SCANNER). SELECT 1-12, AND PRESS START.

1.OC_Fine.HT	64	2.OC_SFine.HT	64	3.OC_UFine.HT	64
4.SPF1_Fine.HT	64	5.SPF1_SFine.HT	64	6.SPF1_UFine.HT	64
7.SPF2_Fine.HT	64	8.SPF2_SFine.HT	64	9.SPF2_UFine.HT	64
10.CIS_Fine.HT	64	11.CIS_SFine.HT	64	12.CIS_UFine.HT	64

46-31

Purpose	Adjustment
Function (Purpose)	Used to adjust sharpness of the copy mode.
Item	Picture quality

Operation/Procedure

(Copy mode selection)

- 1) Select the number corresponding to the copy mode to be adjusted with 10-key. (Select one of 1 - 16.)
- 2) Press [START] key.

(Sharpness adjustment)

- 1) Enter the sharpness level with 10-key.
- 2) Press [START] key.

The greater the adjustment value is, the greater the sharpness is.

	Item	Set range	Default
1	OC_AE	1 - 5	3
2	OC_CHARA		
3	OC_MIX		
4	OC_PHOTO		
5	SPF1_AE		
6	SPF1_CHARA		
7	SPF1_MIX		
8	SPF1_PHOTO		
9	SPF2_AE		
10	SPF2_CHARA		
11	SPF2_MIX		
12	SPF2_PHOTO		
13	CIS_AE		
14	CIS_CHARA		
15	CIS_MIX		
16	CIS_PHOTO		

* SPF1: DSPF front surface (CCD)

* SPF2: DSPF back surface (CCD)

SIMULATION 46-31

SHARPNESS LEVEL SETUP. SELECT 1-16, AND PRESS START.

1.OC_AE	3	2.OC_CHARA	3	3.OC_MIX	3
4.OC_PHOTO	3	5.SPF1_AE	3	6.SPF1_CHARA	3
7.SPF1_MIX	3	8.SPF1_PHOTO	3	9.SPF2_AE	3
10.SPF2_CHARA	3	11.SPF2_MIX	3	12.SPF2_PHOTO	3
13.CIS_AE	3	14.CIS_CHARA	3	15.CIS_MIX	3
16.CIS_PHOTO	3				

Press [START] key.

Press [SYSTEM SETTINGS] key.

SIMULATION 46-31

SHARPNESS LEVEL SETUP. INPUT VALUE 1-5, AND PRESS START.

1.OC_AE

3

46-39

Purpose	Adjustment
Function (Purpose)	Used to adjust sharpness of the FAX mode.
Item	Picture quality

Operation/Procedure

- 1) Enter the sharpness level with 10-key.
- 2) Press [START] key.

The greater the adjustment value is, the greater the sharpness is.

Default: 3 (Normal), 1 (Halftone)

SIMULATION 46-39		
FAX SHARPNESS LEVEL SETUP. SELECT 1-12, AND PRESS START.		
1:OC_NORMAL 3	2:OC_FINE 3	3:OC_FINE(H) 1
4:OC_SFINE 3	5:OC_SFINE(H) 1	6:OC_UFINE 3
7:OC_UFINE(H) 1	8:OC_600 3	9:OC_600(H) 3
10:SPF1_NORMAL 3	11:SPF1_FINE 3	12:SPF1_FINE(H) 1
13:SPF1_SFINE 3	14:SPF1_SFINE(H) 1	15:SPF1_UFINE 3
16:SPF1_UFINE(H) 1	17:SPF1_600 3	18:SPF1_600(H) 1
19:SPF2_NORMAL 3	20:SPF2_FINE 3	21:SPF2_FINE(H) 1
22:SPF2_SFINE 3	23:SPF2_SFINE(H) 1	24:SPF2_UFINE 3
25:SPF2_UFINE(H) 1	26:SPF2_600 3	27:SPF2_600(H) 1
28:CIS_NORMAL 3	29:CIS_FINE 3	30:CIS_FINE(H) 1
31:CIS_SFINE 3	32:CIS_SFINE(H) 1	33:CIS_UFINE 3
34:CIS_UFINE(H) 1	35:CIS_600 3	36:CIS_600(H) 1

Press [START] key.

Press [SYSTEM SETTINGS] key.

SIMULATION 46-39	
FAX SHARPNESS LEVEL SETUP. INPUT VALUE 1-3, AND PRESS START.	
1:OC_NORMAL	3

46-45

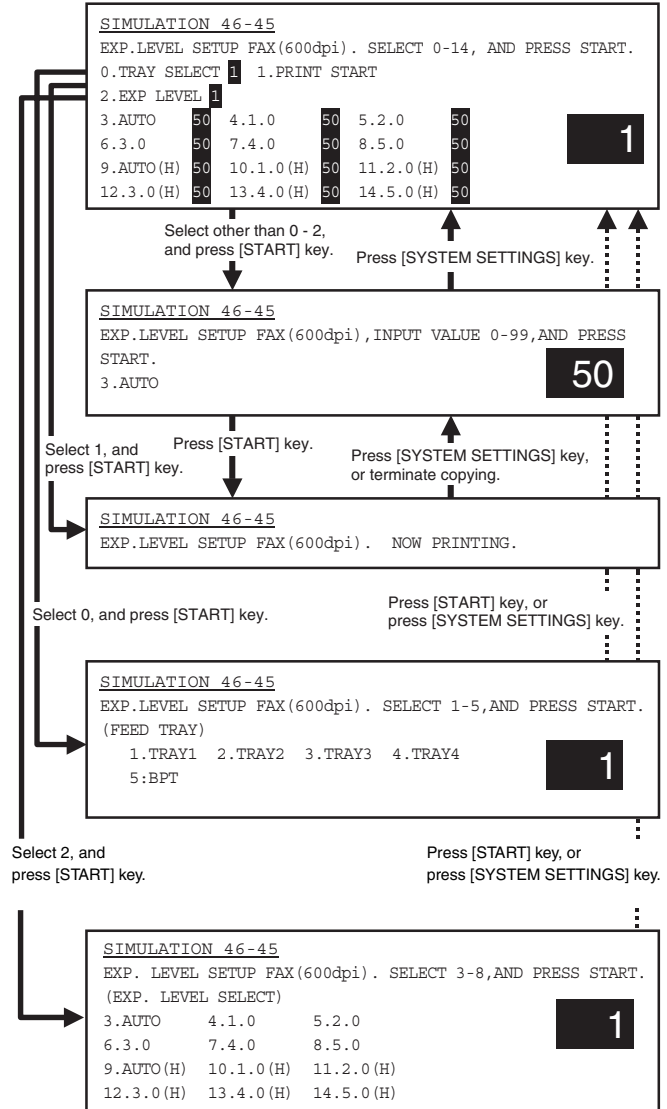
Purpose	Adjustment
Function (Purpose)	Used to adjust the image density in the FAX mode (600dpi).
Item	Picture quality

Operation/Procedure

- 1) Select the number corresponding to one of the following adjustment items with 10-key. (Select one of 3 - 14.)
 - * Normal mode (Image density adjustment level)
 - * Normal mode (Image density adjustment level) (Half-tone mode)
 - * Auto mode
 - * Auto mode (Half-tone mode)
- 2) Press [START] key.
- 3) Enter the image density adjustment value with 10-key.
- 4) Press [START] key or press [P] key.

The adjustment value is set.

Item			Set range	Default
3	AUTO	Auto	0 - 99	50
4	1.0	Exposure level 1		
5	2.0	Exposure level 2		
6	3.0	Exposure level 3		
7	4.0	Exposure level 4		
8	5.0	Exposure level 5		
9	AUTO (H)	Auto (Half-tone)		
10	1.0 (H)	Exposure level 1 (Half-tone)		
11	2.0 (H)	Exposure level 2 (Half-tone)		
12	3.0 (H)	Exposure level 3 (Half-tone)		
13	4.0 (H)	Exposure level 4 (Half-tone)		
14	5.0 (H)	Exposure level 5 (Half-tone)		



46-46

Purpose	Adjustment
Function (Purpose)	Used to adjust sharpness of the scanner mode.
Item	Picture quality

Operation/Procedure

- 1) Enter the sharpness level with 10-key.
- 2) Press [START] key.

The greater the adjustment value is, the greater the sharpness is.

Set range: 1 - 3

Default: 3 (Normal), 1 (Halftone)

SIMULATION 46-46
SCANNER SHARPNESS LEVEL SETUP. SELECT 1-28, AND PRESS START.

1:OC_NORMAL [3]	2:OC_FINE [3]	3:OC_FINE(H) [1]
4:OC_SFINE [3]	5:OC_SFINE(H) [1]	6:OC_UFINE [3]
7:OC_UFINE(H) [1]	8:SPF1_NORMAL [3]	9:SPF1_FINE [3]
10:SPF1_FINE(H) [1]	11:SPF1_SFINE [3]	12:SPF1_SFINE(H) [1]
13:SPF1_UFINE [3]	14:SPF1_UFINE(H) [1]	15:SPF2_NORMAL [3]
16:SPF2_FINE [3]	17:SPF2_FINE(H) [1]	18:SPF2_SFINE [3]
19:SPF2_SFINE(H) [1]	20:SPF2_UFINE [3]	21:SPF2_UFINE(H) [1]
22:CIS_NORMAL [3]	23:CIS_FINE [3]	24:CIS_FINE(H) [1]
25:CIS_SFINE [3]	26:CIS_SFINE(H) [1]	27:CIS_UFINE [3]
28:CIS_UFINE(H) [1]		

Press [START] key.

Press [SYSTEM SETTINGS] key.

SIMULATION 46-46
SCANNER SHARPNESS LEVEL SETUP. INPUT VALUE 1-3, AND PRESS START.

1:OC_NORMAL	3
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48

48-1

Purpose	Adjustment
Function (Purpose)	Used to adjust the copy magnification ratio (in the main scanning and the sub scanning directions).
Section	Optical (Image scanning)
Item	Picture quality

Operation/Procedure

(Adjustment mode selection)

- 1) Select the number corresponding to the copy mode to be adjusted with 10-key. (Select one of 3 - 7.)
- 2) Press [START] key.

	Item	Set range	Default
0	TRAY SELECT	Paper feed tray selection	1 - 5
1	COPY START	Copy START (Default)	—
2	MAGNIFICATION	Print magnification ratio	25 - 400%
3	CCD (MAIN)	SCAN main scanning magnification ratio adjustment (CCD)	0 - 99
4	CCD (SUB)	SCAN sub scanning magnification ratio adjustment (CCD)	50
5	SPF (MAIN)	SPF front surface magnification ratio adjustment (Main scan)	
6	SPF (SUB)	SPF front surface magnification ratio adjustment (Sub scan)	
7	CIS (MAIN)	SPF back surface magnification ratio adjustment (CIS main scan)	

(Copy magnification ratio adjustment)

- 1) Select the number corresponding to the copy magnification ratio adjustment mode to be adjusted with 10-key. (Select one of 3 - 7.)
- 2) Press [START] key.
- 3) Enter the copy magnification ratio adjustment value with 10-key.
- 4) Press [P] key or [START] key.

When the [START] key is pressed, copying is performed and the adjustment value is set simultaneously.

The copy magnification ratio in the sub scan direction can be adjusted by changing the scan speed (motor RPM).

Normal display		NOW COPYING.
ERROR display	Door open	DOOR OPEN.
	Jam	JAM
	Paper empty	PAPER EMPTY.

The greater the value is, the greater the correction is. One step corresponds to 0.1% adjustment.

(Copy condition setting in this simulation)

* To select paper (paper feed tray), perform the following procedures.

- 1) Enter 0 with 10-key.
- 2) Press [START] key. (The mode is changed to the paper feed tray selection mode.)
- 3) Enter the number corresponding to the paper feed tray of the selected paper with 10-key. (Select one of 1 - 5.)
- 4) Press [START] key. (The paper feed tray is selected.)

1	TRAY1	TRAY1
2	TRAY2	TRAY2
3	TRAY3	TRAY3
4	TRAY4	TRAY4
5	BPT	Manual feed

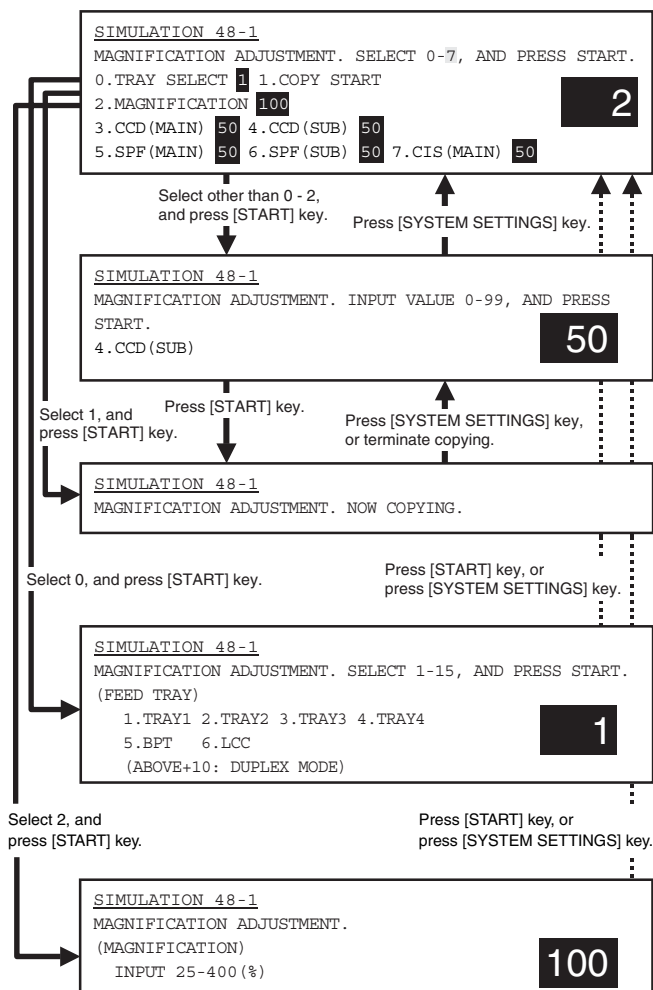
When the total of the above set value (1 - 5) and 10 is entered, the mode is changed to the duplex mode.

* The copy magnification ratio can be set with the following

- 1) Enter 2 with 10-key.
- 2) Press [START] key.
- 3) Enter the copy magnification ratio with 10-key.
- 4) Press [START] key.

Set range	25 - 400%
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NOTE: When [P] key is pressed after entering the adjustment value, the adjustment value is set. When [START] key is pressed instead, the adjustment value is set and copying is performed.



48-5

Purpose	Adjustment
Function (Purpose)	Used to adjust the copy magnification ratio in the sub scanning direction.
Section	Optical (Image scanning)
Item	Picture quality

Operation/Procedure

When the sub scanning direction image magnification ratio adjustment with SIM 48-1 cannot provide a satisfactory result if a different magnification ratio is set and a copy is made, perform this simulation.

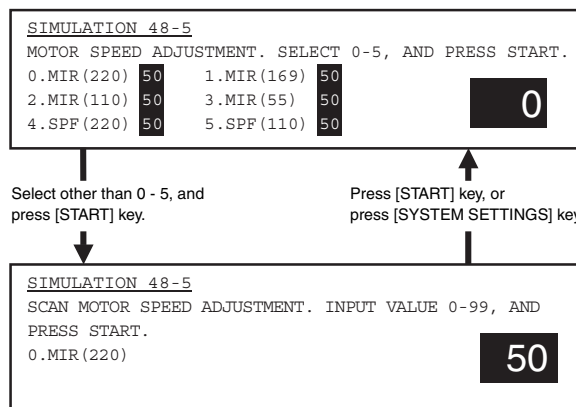
When there is an error in the copy magnification ratio in reduction copy, change the adjustment value of the high speed mode. When there is an error in the copy magnification ratio in enlargement copy, change the adjustment value of the low speed mode.

- 1) Select the number corresponding to the adjustment mode with 10-key.
- 2) Press [START] key.
- 3) Enter the copy adjustment value with 10-key.

The scanner/SPF motor rotation speed adjustment value is entered.

Item	Content	Set range	Default
0	MIR (220) Mirror motor (220mm/sec)	0 - 99	50
1	MIR (169) Mirror motor (168.7mm/sec)		
2	MIR (110) Mirror motor (110mm/sec)		
3	MIR (55) Mirror motor (55mm/sec)		
4	SPF (220) SPF motor (220mm/sec)		
5	SPF (110) SPF motor (110mm/sec)		

- 4) Press [START] key.



48-6

Purpose	Adjustment
Function (Purpose)	HSYNC cycle adjustment
Item	Picture quality

Operation/Procedure

(Adjustment mode selection)

- 1) Select the number corresponding to the HSYNC cycle to be adjusted with 10-key. (Select one of 3.)
- 2) Press [START] key.

Item			Set range	Default
0	TRAY SELECT	Paper feed tray selection	—	—
1	COPY START	Copy START (Default)	—	—
2	MAGNIFICATION	Print magnification ratio	25 - 400	—
3	CIS	CIS HSYNC cycle	40 - 60	50

(HSYNC cycle adjustment)

- 1) Select the number corresponding to the HSYNC cycle to be adjusted with 10-key. (Select one of 3.)
- 2) Press [START] key.
- 3) Enter the HSYNC cycle adjustment value with 10-key.
- 4) Press [START] key.

When the [START] key is pressed, copying is performed and the adjustment value is set simultaneously.

Normal display		NOW COPYING.
ERROR display	Door open	DOOR OPEN.
	Jam	JAM
	Paper empty	PAPER EMPTY.

(Copy condition setting in this simulation)

* To select paper (paper feed tray), perform the following procedures.

- 1) Enter 0 with 10-key.
- 2) Press [START] key. (The mode is changed to the paper feed tray selection mode.)
- 3) Enter the number corresponding to the paper feed tray of the selected paper with 10-key. (Select one of 1 - 5.)
- 4) Press [START] key. (The paper feed tray is selected.)

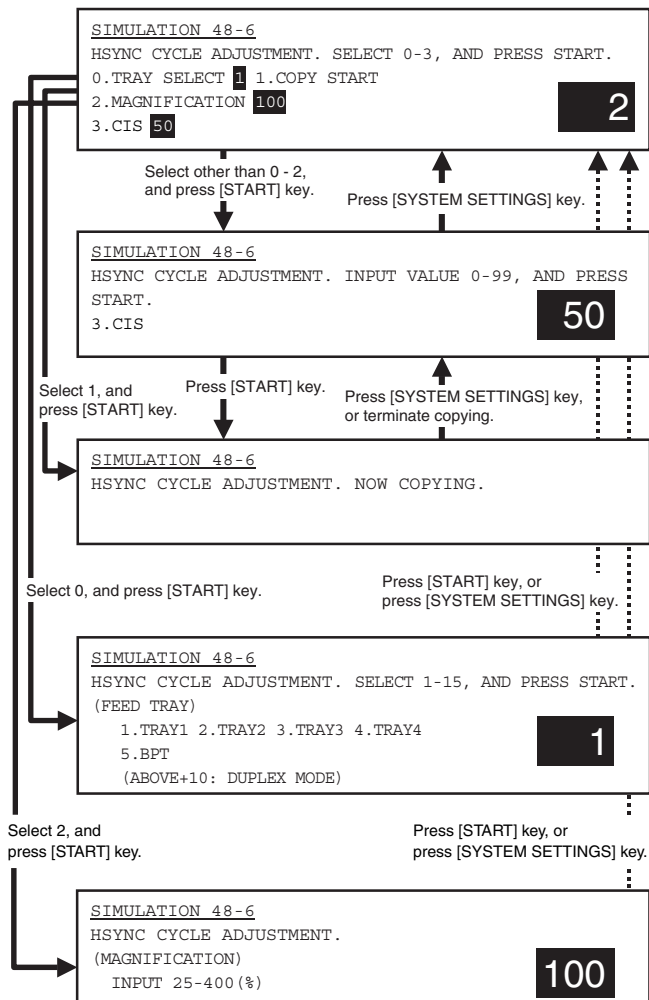
1	TRAY1	TRAY1
2	TRAY2	TRAY2
3	TRAY3	TRAY3
4	TRAY4	TRAY4
5	BPT	Manual feed

When the total of the above set value (1 - 5) and 10 is entered, the mode is changed to the duplex mode.

* The copy magnification ratio can be set with the following

- 1) Enter 2 with 10-key.
- 2) Press [START] key.
- 3) Enter the copy magnification ratio with 10-key.
- 4) Press [START] key.

Set range	25 - 400%
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49

49-1	
Purpose	Setting/update
Function (Purpose)	Firmware updating
Section	—

Operation/Procedure

- 1) Before proceeding to the SIM 49-1 screen, insert the USB memory to the main unit.
 - * File and folder of the USB memory are displayed. (When the foldername is longer than 34 characters, it is not completely displayed.)
 - * If the USB memory is not inserted, "INSERT A USB MEMORY DEVICE CONTAINING MFP FIRMWARE, PLEASE USE FAT (12/16) FORMAT" is displayed.
 - * Non compliant to FAT32. If it's inserted, "CAN NOT SUPPORT FAT32. PLEASE USE FAT (12/16) FORMAT" is displayed.

- 2) Enter the file/folder number of firmware that tries to be updated with 10-key, and press [START] key.
- 3) If selecting the file, "FIRMWARE UPDATE.. ARE YOU SURE ?" is displayed. ([1]: execute, [2]: get back)
 - * If the operation is normally completed, "COMPLETE" is displayed. When the error occurs, "ERROR" is displayed.

SIMULATION 49-1	
FIRMWARE UPDATE. SELECT FIRMUP FILE, AND PRESS START. 1. FILE1.sfu 2. FILE2.sfu 3. FILE3.sfu . . 19. >>NEXT Page	0

50

50-1	
Purpose	Adjustment
Function (Purpose)	Used to adjust the copy image position and the void area (image loss) adjustment on print paper in the copy mode. (The similar adjustment can be performed with SIM 50-5 and 50-2 (Simplified method).) (Document table mode)
Item	Picture quality Image position

Operation/Procedure

(Lead edge image loss/void area adjustment)

- 1) Set the lead edge image loss adjustment value (LEAD EDGE) and the paper lead edge void adjustment value (DENA) as follows.
 - (Standard set value) Lead edge image loss: 1.5mm (LEDA: 15)
 - Paper lead edge void: 3.5mm (DENA: 35)
 - * Set LEAD to 15. (Enter 15 as the adjustment value of LEAD, and press [P] key.) (0.1mm/step)
 - * Set DENA to 35. (Enter 35 as the adjustment value of DENA, and press [P] key.) (0.1mm/step)
- 2) Make a copy at the normal ratio (100%) and check the lead edge void area and the image loss. (Enter 100 as the set value of the copy magnification ratio (MAGNIFICATION), and press [START] key.)
- 3) If the adjustment result is not satisfactory, perform the following procedures.
 - * If the lead edge void are is not 3.5mm:
 - Change the adjustment value of RRCB and perform the adjustment. (Change the adjustment value of RRCB and press [START] key.) (1msec/step)
 - * If the lead edge image loss is not 1.5mm:
 - Change the adjustment value of RRCA and perform the adjustment. (Change the adjustment value of RRCA and press [START] key.)
 - (Shift for the adjustment value change: 0.2mm/step)

(Rear edge void area adjustment)

Adjust so that the rear edge void area is 3.5mm. (Change the adjustment value of TRAIL EDGE, and press [START] key.)

(Front/rear frame direction image loss adjustment)

Set the adjustment value of SIDE to 20. (Enter 20 as the adjustment value of SIDE, and press [P] key.)

When the adjustment value is changed, the image position is shifted in the front/rear frame direction.

(Front/rear frame direction void area adjustment)

Adjust so that the total of the front/rear direction void areas is 7.0mm. (Change the adjustment values of FRONT/REAR, and press [START] key.)

Front frame void area = 3.5mm Rear frame void area = 3.5mm

If, as shown above, the front and the rear void areas are not even, use SIM 50-5 to adjust the image off-center position.

Item		Content	Set range	Default
0	TRAY SELECT	Paper feed tray selection	1 - 5	—
1	COPY START	Copy START (Default)	—	—
2	MAGNIFICATION	Print magnification ratio	25 - 400%	—
(Lead edge adjustment value)				
3	RRCA	Document scan start position	0 - 99	50
4	RRCB	Resist roller clutch ON timing adjustment value		
10	SIDE2 ADJ.	Correction value for RRCB when refereeing from ADU	1 - 99	50
(Image loss set value)				
5	LEAD	Lead edge image loss set value	0 - 99	15
6	SIDE	Side image loss set value		20
(Void set value)				
7	LEAD_EDGE (DENA)	Lead edge void set value	0 - 99	35
8	TRAIL_EDGE (DENB)	Rear edge void adjustment value		
9	FRONT/REAR	Front/Rear void adjustment value		32

NOTE: When [P] is pressed after entering an adjustment value, the adjustment value is set. When [START] key is pressed instead, the adjustment value is set and copying is performed.)

Normal display		NOW COPYING.
ERROR display	Door open	DOOR OPEN.
	Jam	JAM
	Paper empty	PAPER EMPTY.

(Copy condition in this simulation)

* To select paper (paper feed tray), perform the following procedures.

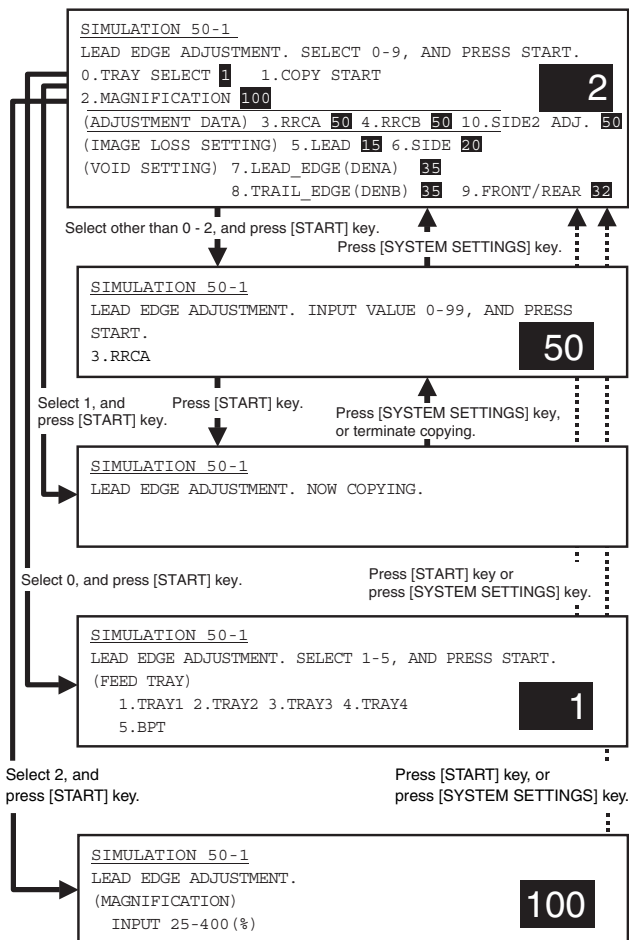
- 1) Enter 0 with 10-key.
- 2) Press [START] key. (The mode is changed to the paper feed tray selection mode.)
- 3) Enter the number corresponding to the paper feed tray of the target paper with 10-key.
- 4) Press [START] key. (The paper feed tray is selected.)

1	TRAY1	TRAY1
2	TRAY2	TRAY2
3	TRAY3	TRAY3
4	TRAY4	TRAY4
5	BPT	Manual feed

* To set the magnification ratio, perform the following procedure.

- 1) Enter 2 with 10-key.
- 2) Press [START] key.
- 3) Enter the copy magnification ratio with 10-key.
- 4) Press [START] key.

Set range	25 - 400 (%)
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50-2	
Purpose	Adjustment
Function (Purpose)	Used to adjust the document scan position, the image print position, and the void area (image loss). (Simple adjustment) (This adjustment is the simple method of SIM 50-1.) (Document table mode)
Item	Picture quality Image position

Operation/Procedure

(Lead edge image loss/void area adjustment)

- 1) Set the RRGB value of SIM 50-1 to 80 - 99.
- 2) Set the lead edge image loss adjustment value (LEAD EDG) and the paper lead edge void adjustment value (DENA) to the values specified below.
(Standard set value) Lead edge image loss: 1.5mm
Paper lead edge void: 3.5mm (DENA: 35)
* Set the adjustment value of LEAD to 15. (Enter 15 as the adjustment value of LEAD and press [P] key.)
* Set the adjustment value of DENA to 35. (Enter 35 as the adjustment value of DENA and press [P] key.)
- 3) Set the adjustment value of L1 to 0. (Enter 0 as the adjustment value of L1, and press [P] key.)
- 4) Set the adjustment value of L2 to 0. (Enter 0 as the adjustment value of L2, and press [P] key.)
- 5) Make a copy at 400%, and calculate the values of L1 and L2. (Enter 100 as the set value (MAGNIFICATION) of the copy magnification ratio, and press [START] key.) (Place a scale on the document table and make a copy.)
L1 = Distance (mm) from the image lead edge position to the scale position of 10mm x 10
L2 = Distance (mm) from the image lead edge position to the paper lead edge x 10

- 6) Enter the above values as the set values of L1 and L2. (Enter the adjustment values of L1 and L2, and press [P] key.)

If the adjustment result is not satisfactory, perform the above procedures again from the beginning, or use SIM 50-1 to adjust.

NOTE: If a satisfactory result is not obtained with the above procedures, through the adjustment values are changed individually, the normal adjustment cannot be made.

Perform procedures 3) to 6) continuously.

(Rear edge void area adjustment)

Adjust so that the rear edge void area is 3.5mm. (Change the adjustment value of TRAIL EDGE, and press [START] key.)

(Front/rear frame direction image loss adjustment)

Set the adjustment value of SIDE to 20. (Enter 20 as the adjustment value of SIDE, and press [P] key.)

When this adjustment value is changed, the image position is shifted in the front/rear frame direction.

(Front/rear frame direction void area adjustment)

Adjust so that the total of the front/rear direction void areas is 7.0mm. (Change the adjustment values of FRONT/REAR, and press [START] key.)

Front frame void area = 3.5mm Rear frame void area = 3.5mm

If, as shown above, the front and the rear void areas are not even, use SIM 50-5 to adjust the image off-center position.

Item		Content	Set range	Default
0	TRAY SELECT	Paper feed tray selection	1 - 5	—
1	COPY START	Copy START (Default)	—	—
2	MAGNIFICATION	Print magnification ratio	25 - 400%	400
(Lead edge adjustment value)				
3	L1	Distance from the image lead edge to the scale of 10mm. (Platen 400%, 0.1mm increment)	0 - 999	—
4	L2	Distance from the paper lead edge to the image lead edge (0.1mm increment)		—
(Image loss set value)				
5	LEAD	Lead edge image loss set value	0 - 99	15
6	SIDE	Side image loss set value		20
(Void set value)				
7	LEAD_EDGE (DENA)	Lead edge void set value	0 - 99	35
8	TRAIL_EDGE (DENB)	Rear edge void adjustment value		
9	FRONT/REAR	Front/Rear void adjustment value		32

NOTE: When [P] is pressed after entering an adjustment value, the adjustment value is set. When [START] key is pressed instead, the adjustment value is set and copying is performed.)

Normal display		NOW COPYING.
ERROR display	Door open	DOOR OPEN.
	Jam	JAM
	Paper empty	PAPER EMPTY.

(Copy condition in this simulation)

* To select paper (paper feed tray), perform the following procedures.

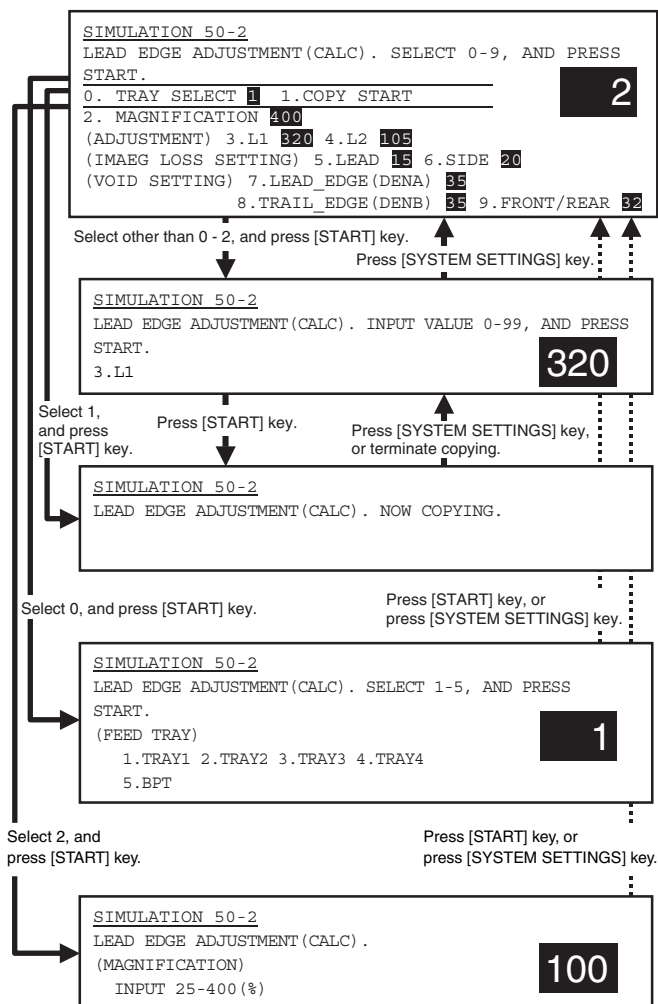
- 1) Enter 0 with 10-key.
- 2) Press [START] key. (The mode is changed to the paper feed tray selection mode.)
- 3) Enter the number corresponding to the paper feed tray of the target paper with 10-key.
- 4) Press [START] key. (The paper feed tray is selected.)

1	TRAY1	TRAY1
2	TRAY2	TRAY2
3	TRAY3	TRAY3
4	TRAY4	TRAY4
5	BPT	Manual feed

* To set the magnification ratio, perform the following procedure.

- 1) Enter 2 with 10-key.
- 2) Press [START] key.
- 3) Enter the copy magnification ratio with 10-key.
- 4) Press [START] key.

Set range	25 - 400 (%)
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Purpose	Adjustment
Function (Purpose)	Used to adjust the print image position and the void area (image loss) on print paper. (Adjustment as the print engine) (This adjustment is reflected on all the FAX/printer/copy modes.)
Item	Picture quality

Operation/Procedure

(Print image off-center position adjustment)

- 1) Enter the number corresponding to the paper feed tray to be adjusted with 10-key. (Select one of 9 - 14.) (Table 1)
- 2) Press [START] key.
- 3) Enter the adjustment value with 10-key.
- 4) Press [P] key or [START] key. When [START] key is pressed, the adjustment value is set and printing is performed. (Table 2)

Check the off-center of the self-print pattern of print-out.

(Shift for the adjustment value change: 0.1mm/step)

The greater the adjustment value is, the more the print image is shifted to the front.

(Lead edge void area adjustment)

- 1) Set the lead edge void adjustment value (DENA) as specified below.

(Standard set value) Paper lead edge void: 3.5mm (DENA: 35)

* Set the adjustment value of DENA to 35. Enter 35 as the adjustment value of DENA, and press [P] key.

- 2) Check the lead edge void area on the self print pattern. (Enter 1 and press [START] key.)
- 3) If the adjustment result is not satisfactory, perform the following procedures.

* If the lead edge void area is not 3.5mm:
Change the adjustment value of RRCB and perform the adjustment. (Change the adjustment value of RRCB and press [START] key.)
(Shift for the adjustment value change: 0.1mm/step)

(Front/rear frame direction void area adjustment)

Adjust so that the total of the front/rear direction void areas is 7.0mm. (Change the adjustment values of FRONT/REAR, and press [START] key.)

Front frame void area = 3.5mm Rear frame void area = 3.5mm

(Paper resist adjustment)

- 1) Enter the number corresponding to the paper feed tray to be adjusted with 10-key. (Select one of 4 - 8.) (Table 1)
- 2) Press [START] key.
- 3) Enter the adjustment value with 10-key.
- 4) Press [P] key or [START] key. When [START] key is pressed, the adjustment value is set and printing is performed. (Table 2)

If the relative positions of paper and print images vary or a paper jam occurs, change the adjustment value.

(Print condition setting in this simulation)

* To select paper (paper feed tray), perform the following procedures.

- 1) Enter 0 with 10-key.
- 2) Press [START] key. (The mode is changed to the paper feed tray selection mode.)
- 3) Enter the number corresponding to the paper feed tray to be used with 10-key. (Select one of 1 - 5.) (Table 3)
- 4) Press [START] key. (The paper feed tray is selected.)

When the total of the above set value (1 - 5) and 10 is entered, the mode is changed to the duplex print mode.

NOTE: When [P] key is pressed after entering the adjustment value in this simulation, the adjustment value is set. When [START] key is pressed instead, the adjustment value is set and copying is performed.

(Table 1)

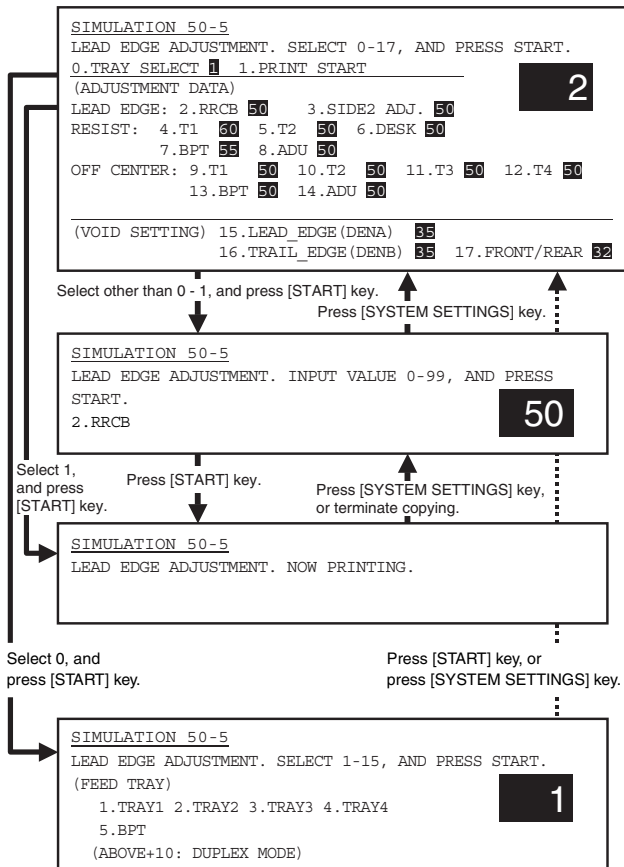
Item			Set range	Default	
				MX-M350	MX-M450
0	TRAY SELECT	Paper feed tray selection	1 - 5	—	
1	PRINT START	Print start (Default)	—	—	
(Lead edge adjustment value)					
2	RRCB	Resist roller clutch ON timing adjustment value	0 - 99	50	
3	SIDE2 ADJ.	Correction value for RRCB when refereeing from ADU		50	
(Resist adjustment value)					
4	T1	Tray 1 adjustment	0 - 99	65	60
5	T2	Tray 2 adjustment		55	50
6	DESK	Tray 4 adjustment		55	50
7	BPT	Manual feed tray adjustment		60	55
8	ADU	Adjustment when paper is fed again from ADU		55	50
(Off-center set value) Self print					
9	T1	Tray 1 adjustment	0 - 99	50	
10	T2	Tray 2 adjustment			
11	T3	Tray 3 adjustment			
12	T4	Tray 4 adjustment			
13	BPT	Manual feed tray adjustment			
14	ADU	Adjustment when paper is fed again from ADU			
(Void set value)					
15	LEAD_EDGE (DENA)	Lead edge void set value	0 - 99	35	
16	TRAIL_EDGE (DENB)	Rear edge void adjustment value			
17	FRONT/REAR	Front/Rear void adjustment value		32	

(Table 2)

Normal display		NOW PRINTING.
ERROR display	Door open	DOOR OPEN.
	Jam	JAM
	Paper empty	PAPER EMPTY.

(Table 3)

1	TRAY1	TRAY1
2	TRAY2	TRAY2
3	TRAY3	TRAY3
4	TRAY4	TRAY4
5	BPT	Manual feed



50-6

Purpose	Adjustment
Function (Purpose)	Used to adjust the copy image position and void area (image loss) on print paper in the copy mode. (The similar adjustment can be performed with SIM 50-7 (simple method).) (SPF mode)
Item	Picture quality

Operation/Procedure

(Lead edge image loss adjustment) (Table 1)

- Set the front and back surface image loss adjustment values (LEAD EDGE) as specified below:
(Standard set value) Lead edge image loss: 1.5mm (LEAD: 1.5) Paper lead edge: 3.5mm (DENA: 35)

* Set the adjustment value of LEAD to 15. (Enter 15 as the adjustment value of LEAD EDGE, and press [P] key.)

- Make a duplex copy at 100% with the SPF, and check that the lead edge (image loss) is 1.5mm either on the front surface and the back surface. (Select the duplex mode in the paper selection mode of SIM 50-6.) (Table 3) (Enter 100 as the copy magnification ratio set value (MAGNIFICATION), and press [START] key.)

If the adjustment result is not satisfactory, perform the following procedures:

- Change the adjustment values of SIDE1 and SIDE2, and perform the adjustment. (Change the adjustment values of SIDE1 and SIDE2, and press [START] key.)

SIDE1: SPF front surface document lead edge scan position adjustment value

SIDE2: SPF back surface document lead edge scan position adjustment value

(Shift for the adjustment value change: 0.1mm/step)

(The image scan start timing is determined with the detection timing of the document lead edge by the detector SPPD.)

Repeat procedures 2) and 3) until a satisfactory result is obtained.

(Rear edge image loss adjustment)

- Use the SPF at 100% to make a duplex copy, and check that the rear edge image loss is 1.5mm on the front and the back surfaces. (Select the duplex mode in the paper selection mode of SIM 50-6.) (Enter 100 as the copy magnification ratio set value (MAGNIFICATION), and press [START] key.)

If the adjustment value is not satisfactory, perform the following procedure.

- Change the adjustment value of TRAIL EDGE. Change the adjustment value of TRAIL EDGE, and press [START] key.

Repeat the above procedures until a satisfactory result is obtained.

(Front/rear frame direction image loss adjustment)

Set the adjustment value of the front surface and the back surface (FRONT/REAR) to 20. (Enter 20 as the adjustment value of FRONT/REAR, and press [P] key.)

When the adjustment value is changed, the image position is shifted in the front/rear frame direction.

NOTE: When [P] key is pressed after entering the adjustment value, the adjustment value is set. When [START] key is pressed instead, the adjustment value is set and copying is performed. (Table 2)

(Copy condition setting in this simulation)

* To select paper (paper feed tray), perform the following procedures.

- Enter 0 with 10-key.
- Press [START] key. (The mode is changed to the paper feed tray selection mode.)
- Enter the number corresponding to the paper feed tray to be used with 10-key. (Table 3)
- Press [START] key. (The paper feed tray is selected.)

* To set the copy magnification ratio, perform the following procedure.

- Enter 2 with 10-key.
- Press [START] key.
- Enter the copy magnification ratio with 10-key.
- Press [START] key.

Set range 25 - 200 (%)

(Table 1)

Item			Set range	Default
0	TRAY SELECT	Paper feed tray selection	1 - 5	—
1	COPY START	Copy START (Default)	—	—
2	MAGNIFICATION	Print magnification ratio	25 - 200%	—
(Lead edge adjustment value)				
3	SIDE1	Front surface document scan start position adjustment value	0 - 99	50
4	SIDE2	Back surface document scan start position adjustment value		
(Image loss set value: SIDE 1)				
5	LEAD_EDGE	Front surface lead edge image loss set value	0 - 99	15
6	FRONT_REAR	Front surface side edge image loss set value		20
7	TRAIL_EDGE	Front surface rear edge image loss set value	0 - 20	0

Item			Set range	Default
(Image loss set value: SIDE 2)				
8	LEAD_EDGE	Back surface lead edge image loss set value	0 - 99	15
9	FRONT/REAR	Back surface side edge image loss set value		20
10	TRAIL_EDGE	Back surface rear edge image loss set value	0 - 20	0

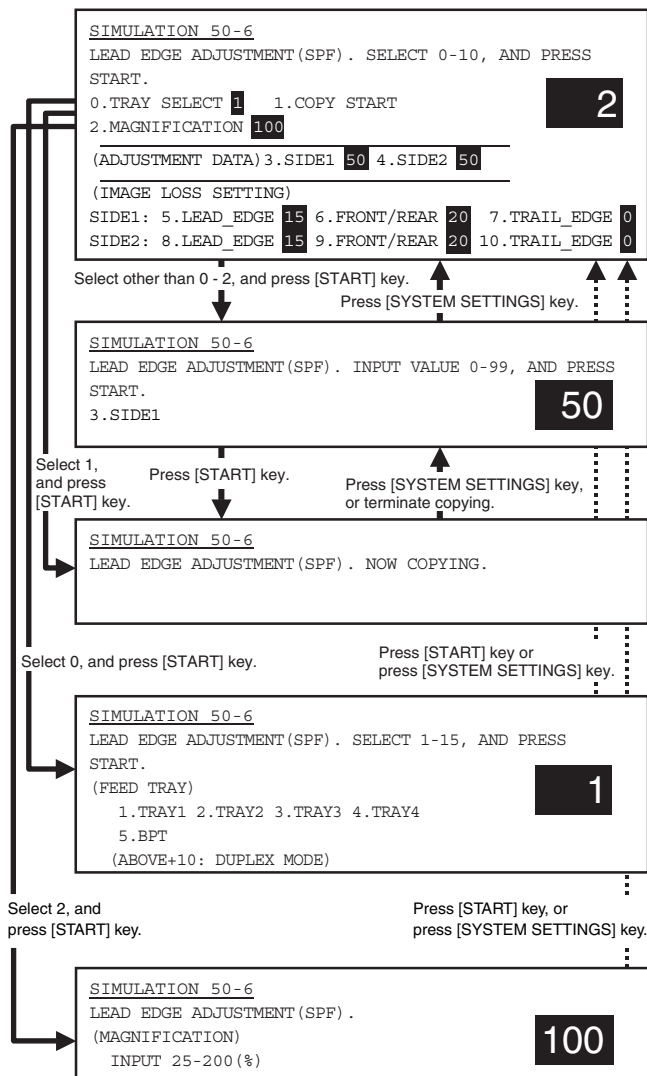
(Table 2)

Normal display		NOW COPYING.
ERROR display	Door open	DOOR OPEN.
	Jam	JAM
	Paper empty	PAPER EMPTY.

(Table 3)

1	TRAY1	TRAY1
2	TRAY2	TRAY2
3	TRAY3	TRAY3
4	TRAY4	TRAY4
5	BPT	Manual feed

When the total of the above set value and 10 is entered, the mode is changed to the duplex mode (DD), and a duplex copy is made.



50-7

Purpose	Adjustment
Function (Purpose)	Used to adjust the copy image position and void area (image loss) on print paper in the copy mode. (The similar adjustment can be performed with SIM 50-6.) (SPF mode)
Item	Picture quality

Operation/Procedure

(Lead edge image loss adjustment)

- Set the front and back surface image loss adjustment values (LEAD EDGE) as specified below:
(Standard set value) Lead edge image loss: 1.5mm (LEAD: 1.5) Paper lead edge void: 3.5mm (DENA: 35)
* Set the adjustment value of LEAD to 15. (Enter 15 as the adjustment value of LEAD EDGE, and press [P] key.)
- Set the adjustment value of L4 to 0. (Enter 0 as the adjustment value of L4, and press [P] key.)
- Set the adjustment value of L5 to 0. (Enter 0 as the adjustment value of L5, and press [P] key.)
- Make a copy at 200% with the SPF, and calculate the values of L4 and L5. (Enter 200 as the set value of the copy magnification ratio set value (MAGNIFICATION) and press [START] key.)

L4 = Distance (mm) from the image lead edge position to the scale of 10mm x 10

L5 = Distance (mm) from the image lead edge position to the paper lead edge x 10

- Enter the above values as the set values of L4 and L5. (Enter the adjustment values of L4 and L5, and press [P] key.)
(The image scan start timing is determined with the detection timing of the document lead edge by the detector SPPD.)

If the adjustment result is not satisfactory, perform the above procedures again or adjust with SIM 50-1.

NOTE: If the adjustment result of the above procedures is not satisfactory, though the adjustment value is changed individually, the adjustment cannot be completed normally.

Repeat procedures 2) - 6) until a satisfactory result is obtained.

(Rear edge image loss adjustment)

Adjust so that the rear edge image loss is 3.5mm. (Change the adjustment value of TRAIL EDGE, and press [START] key.)

(Front/rear frame direction image loss adjustment)

Set the adjustment value of SIDE to 20. (Enter 20 as the adjustment value of SIDE, and press [P] key.)

When the adjustment value is changed, the image position is shifted in the front/rear frame direction.

NOTE: When [P] key is pressed after entering the adjustment value, the adjustment value is set. When [START] key is pressed instead, the adjustment value is set and copying is performed. (Table 2)

(Copy condition setting in this simulation)

* To select paper (paper feed tray), perform the following procedures.

- Enter 0 with 10-key.
- Press [START] key. (The mode is changed to the paper feed tray selection mode.)
- Enter the number corresponding to the paper feed tray to be used with 10-key. (Table 3)
- Press [START] key. (The paper feed tray is selected.)

* To set the copy magnification ratio, perform the following procedure.

- Enter 2 with 10-key.
- Press [START] key.
- Enter the copy magnification ratio with 10-key.

4) Press [START] key.

Set range	25 - 200 (%)
-----------	--------------

(Table 1)

Item			Set range	Default
0	TRAY SELECT	Paper feed tray selection	1 - 5	—
1	COPY START	Copy START (Default)	—	—
2	MAGNIFICATION	Print magnification ratio	25 - 200%	—
(Lead edge adjustment value)				
3	L4	Distance from the front surface image lead edge to the scale of 10mm (SPF: 200%)	0 - 999	—
4	L5	Distance from the back surface image lead edge to the scale of 10mm (SPF: 200%)		—
(Image loss set value: SIDE 1)				
5	LEAD_EDGE	Front surface lead edge image loss set value	0 - 99	15
6	FRONT_REAR	Front surface side edge image loss set value		20
7	TRAIL_EDGE	Front surface rear edge image loss set value	0 - 20	0
(Image loss set value: SIDE 2)				
8	LEAD_EDGE	Back surface lead edge image loss set value	0 - 99	15
9	FRONT/REAR	Back surface side edge image loss set value		20
10	TRAIL_EDGE	Back surface rear edge image loss set value	0 - 20	0

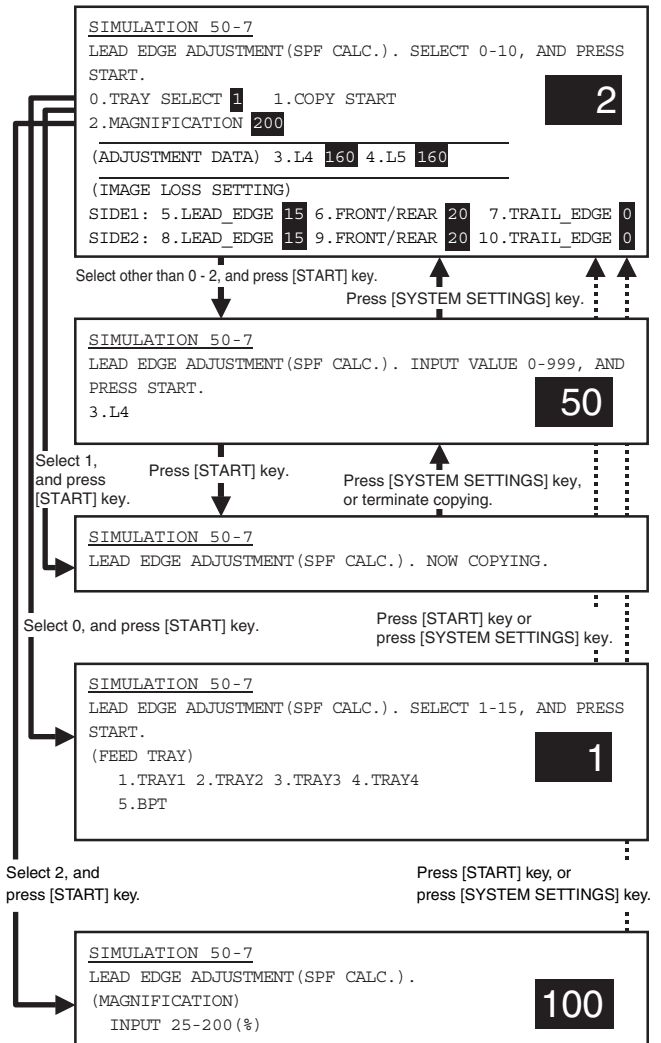
(Table 2)

Normal display		NOW COPYING.
ERROR display	Door open	DOOR OPEN.
	Jam	JAM
	Paper empty	PAPER EMPTY.

(Table 3)

1	TRAY1	TRAY1
2	TRAY2	TRAY2
3	TRAY3	TRAY3
4	TRAY4	TRAY4
5	BPT	Manual feed

When the total of the above set value and 10 is entered, the mode is changed to the duplex mode (DD), and a duplex copy is made.



50-10

Purpose	Adjustment
Function (Purpose)	Used to adjust the print image off-center position. (Adjusted separately for each paper feed section.)
Item	Picture quality Image position

Operation/Procedure

(Print image off-center position adjustment)

NOTE: This simulation cannot provide an accurate adjustment. Do not use.

- 1) Enter the number corresponding to the number of the paper feed tray to be adjusted with 10-key. (Select one of 3 - 8.)

Item			Set range	Default
0	TRAY SELECT	Paper feed tray selection	1 - 5	—
1	COPY START	Copy START (Default)	—	—
2	MAGNIFICATION	Print magnification ratio	25 - 400%	100
(Off-center adjustment value)				
3	TRAY1	Tray 1 adjustment	0 - 99	50
4	TRAY2	Tray 2 adjustment		
5	TRAY3	Tray 3 adjustment		
6	TRAY4	Tray 4 adjustment		
7	BPT	Manual feed tray adjustment		
8	ADU	Adjustment when paper is fed again from ADU		

- 2) Press [START] key.
- 3) Enter the adjustment value with 10-key.
- 4) Press [P] key or [START] key. When [START] key is pressed, the adjustment value set and copying is performed.

Normal display		NOW COPYING.
ERROR display	Door open	DOOR OPEN.
	Jam	JAM
	Paper empty	PAPER EMPTY.

(Image off-center adjustment)

- 1) Enter 1 with 10-key.
- 2) Press [START] key. The adjustment pattern is printed.
- 3) Check the off-center of the printed image.
(UNIT: 0.1mm/step When the adjustment value is increased, the print image is shifted to the front direction.)

NOTE: This adjustment can be performed with SIM 50-5.

(Copy condition setting in this simulation)

* To select paper (paper feed tray), perform the following procedures.

- 1) Enter 0 with 10-key.
- 2) Press [START] key. (The mode is changed to the paper feed tray selection mode.)
- 3) Enter the number corresponding to the paper feed tray to be used with 10-key. (Select one of 1 - 5)
- 4) Press [START] key. (The paper feed tray is selected.)

1	TRAY1	TRAY1
2	TRAY2	TRAY2
3	TRAY3	TRAY3
4	TRAY4	TRAY4
5	BPT	Manual feed

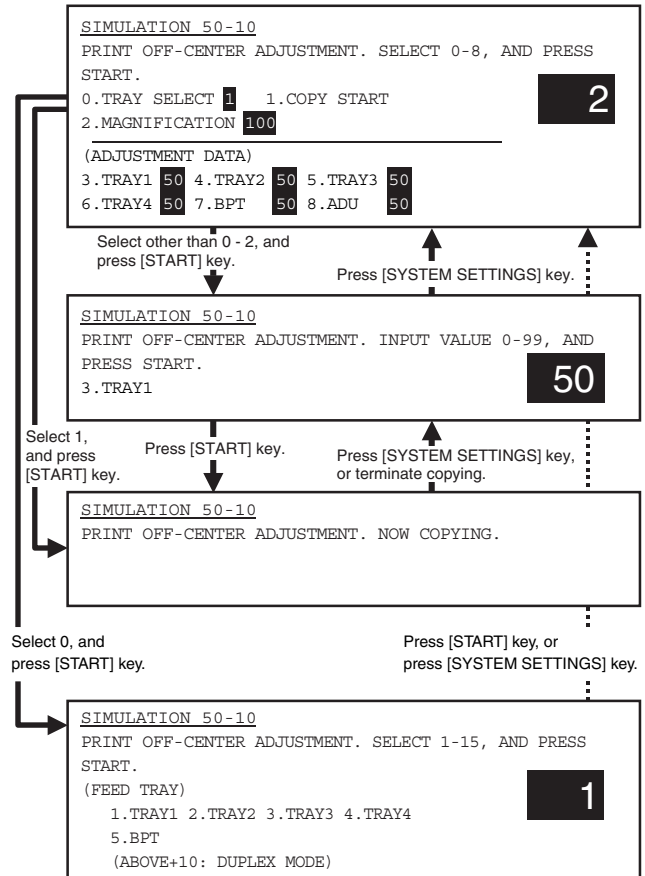
When the total of the above set value (1 - 5) and 10 is entered, the mode is changed to the duplex print mode.

* To set the copy magnification ratio, perform the following procedure.

- 1) Enter 2 with 10-key.
- 2) Press [START] key.
- 3) Enter the copy magnification ratio with 10-key.
- 4) Press [START] key.

Set range	25 - 400 (%)
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NOTE: When [P] key is pressed after entering the adjustment value in this simulation, the adjustment value is set. When [START] key is pressed, the adjustment value is set and copying is performed.



50-12

Purpose	Adjustment
Function (Purpose)	Used to adjust the scan image off-center position. (Adjusted separately for each scan mode.)
Section	
Item	Picture quality Image position

Operation/Procedure

(Select the scan mode to be adjusted.)

- 1) Enter the number corresponding to the scan mode to be adjusted with 10-key. (Select one of 3 - 5.)

Item			Set range	Default
0	TRAY SELECT	Paper feed tray selection	1 - 5	—
1	COPY START	Copy START (Default)	—	—
2	MAGNIFICATION	Print magnification ratio	25 - 400%	100
(Resist adjustment value)				
3	PLATEN	OC mode adjustment	0 - 99	50
4	SPF SIDE1	SPF front surface adjustment		
5	SPF SIDE2	SPF back surface adjustment		

- 2) Press [START] key.

(Scan off-center position adjustment)

- 1) Enter the scan image position adjustment value with 10-key.
- 2) Press [P] key or [START] key.

When [START] key is pressed, the adjustment value is set and copying is performed.

Normal display		NOW COPYING.
ERROR display	Door open	DOOR OPEN.
	Jam	JAM
	Paper empty	PAPER EMPTY.

Check the off-center of the printed image.

Repeat the above procedures until a satisfactory result is obtained.

(UNIT: 0.1mm/step When the adjustment value is increased, the print image is shifted to the front direction.)

(Copy condition setting in this simulation)

* To select paper (paper feed tray), perform the following procedures.

- 1) Enter 0 with 10-key.
- 2) Press [START] key. (The mode is changed to the paper feed tray selection mode.)
- 3) Enter the number corresponding to the paper feed tray to be used with 10-key. (Select one of 1 - 6)
- 4) Press [START] key. (The paper feed tray is selected.)

1	TRAY1	TRAY1
2	TRAY2	TRAY2
3	TRAY3	TRAY3
4	TRAY4	TRAY4
5	BPT	Manual feed

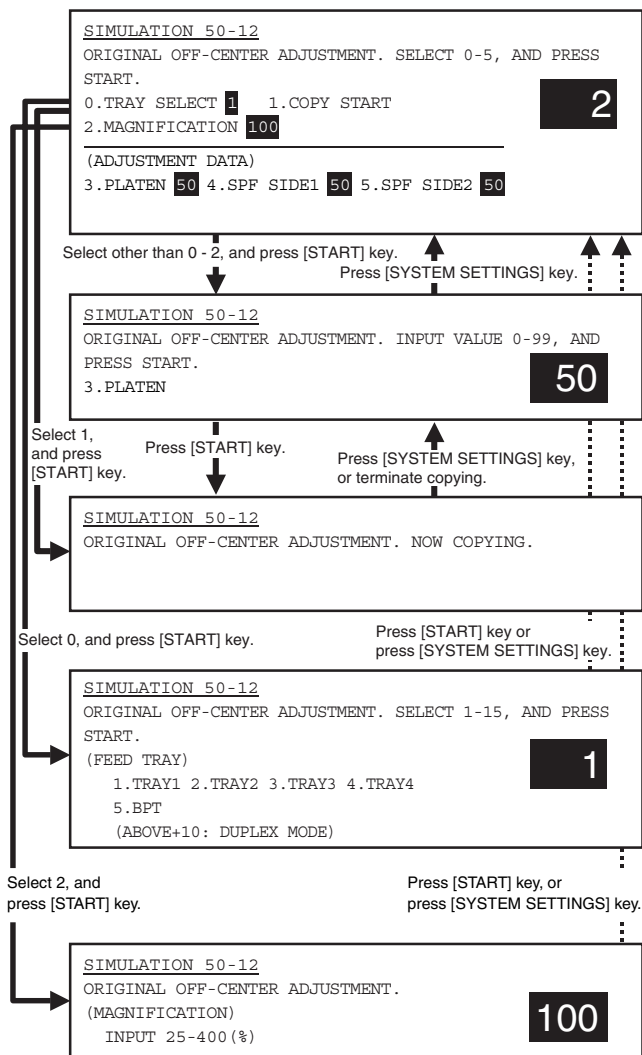
When the total of the above set value (1 - 5) and 10 is entered, the mode is changed to the duplex print mode.

* To set the copy magnification ratio, perform the following procedure.

- 1) Enter 2 with 10-key.
- 2) Press [START] key.
- 3) Enter the copy magnification ratio with 10-key.
- 4) Press [START] key.

Set range	25 - 400 (%)
-----------	--------------

NOTE: When [P] key is pressed after entering the adjustment value in this simulation, the adjustment value is set. When [START] key is pressed, the adjustment value is set and copying is performed.



50-27

Purpose	Adjustment
Function (Purpose)	Used to adjust the image loss of the scan image in the FAX/scan mode.
Item	Picture quality

Operation/Procedure

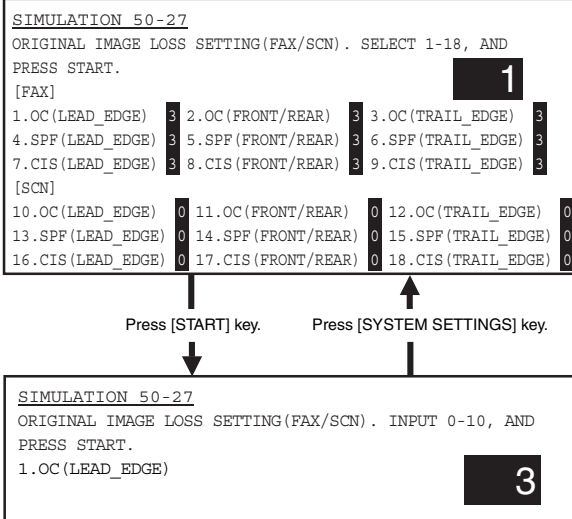
(Select the scan mode to be adjusted.)

- 1) Enter the number corresponding to the adjustment item with 10-key.
- 2) Press [START] key.
- 3) Enter the adjustment value with 10-key.
- 4) Press [START] key.

(Shift for the adjustment value change: 1.0mm/step)

Item			Set range	Default
FAX send				
1	OC (LEAD_EDGE)	OC lead edge	0 - 10 (Unit 1mm)	3 (3mm)
2	OC (FRONT/REAR)	OC side		
3	OC (TRAIL_EDGE)	OC rear edge		
4	SPF (LEAD_EDGE)	SPF lead edge		
5	SPF (FRONT/REAR)	SPF side		
6	SPF (TRAIL_EDGE)	SPF rear edge		
7	CIS (LEAD_EDGE)	CIS lead edge		
8	CIS (FRONT/REAR)	CIS side		
9	CIS (TRAIL_EDGE)	CIS rear edge		

Item			Set range	Default
Scanner mode				
10	OC (LEAD_EDGE)	OC lead edge	0 - 10 (Unit 1mm)	0 (0mm)
11	OC (FRONT/REAR)	OC side		
12	OC (TRAIL_EDGE)	OC rear edge		
13	SPF (LEAD_EDGE)	SPF lead edge		
14	SPF (FRONT/REAR)	SPF side		
15	SPF (TRAIL_EDGE)	SPF rear edge		
16	CIS (LEAD_EDGE)	CIS lead edge		
17	CIS (FRONT/REAR)	CIS side		
18	CIS (TRAIL_EDGE)	CIS rear edge		



51

51-2

Purpose	Adjustment
Function (Purpose)	Used to adjust the contact pressure of paper on the resist roller of each section (each paper feed, duplex feed and SPF paper feed of the copier). (This adjustment is required when the print image position variations are considerably great or when paper jams occur frequently.)
Section	Paper transport (Discharge/Switchback/Transport)
Item	Operation

Operation/Procedure

(Select the scan mode to be adjusted.)

- 1) Enter the number corresponding to the paper feed tray to be adjusted with 10-key. (Select one of 2 - 12.)

Item			Set range	Default	
				MX-M350	MX-M450
0	TRAY SELECT	Paper feed tray selection	1 - 5	—	
1	PRINT START	Copy start (Initial value)	—	—	
2	TRAY1	Tray 1 resist adjustment value	0 - 99	65	60
3	TRAY2	Tray 2 resist adjustment value		55	50
4	DESK	Desk resist adjustment value		55	50
5	BPT	Manual tray resist adjustment value		60	55
6	ADU	ADU resist adjustment value		55	50
7	SPF (HIGH)	SPF resist adjustment value (High speed)		60	60
8	SPF (LOW)	SPF resist adjustment value (Low speed)		75	75

- 2) Press [START] key.

(Resist adjustment)

- 1) Enter the resist adjustment value with 10-key.

- 2) Press [START] key.

When [START] key is pressed, the adjustment value is set and paper feed and copying are performed.

Normal display		NOW PRINTING.
ERROR display	Door open	DOOR OPEN.
	Jam	JAM
	Paper empty	PAPER EMPTY.

(Copy condition setting in this simulation)

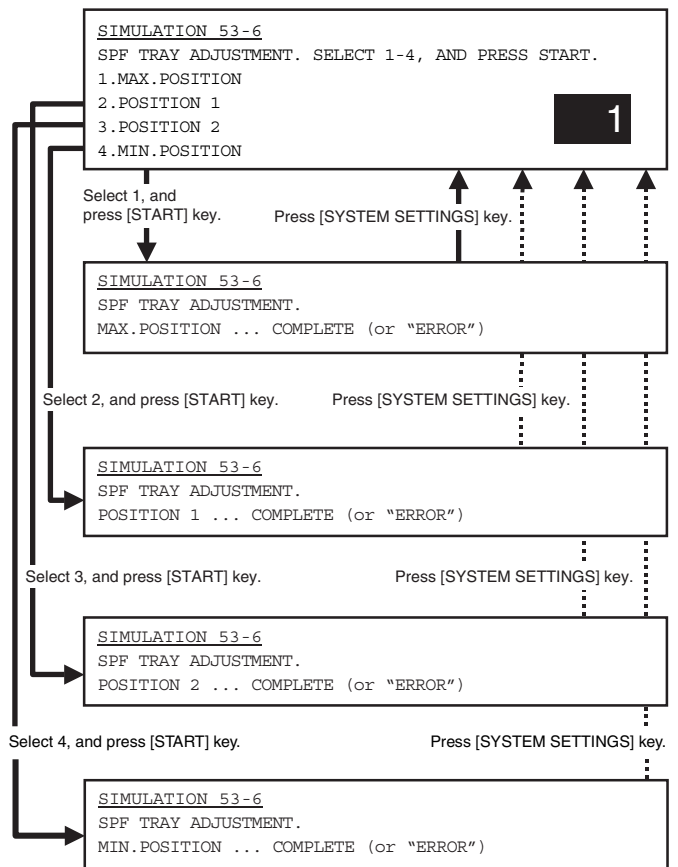
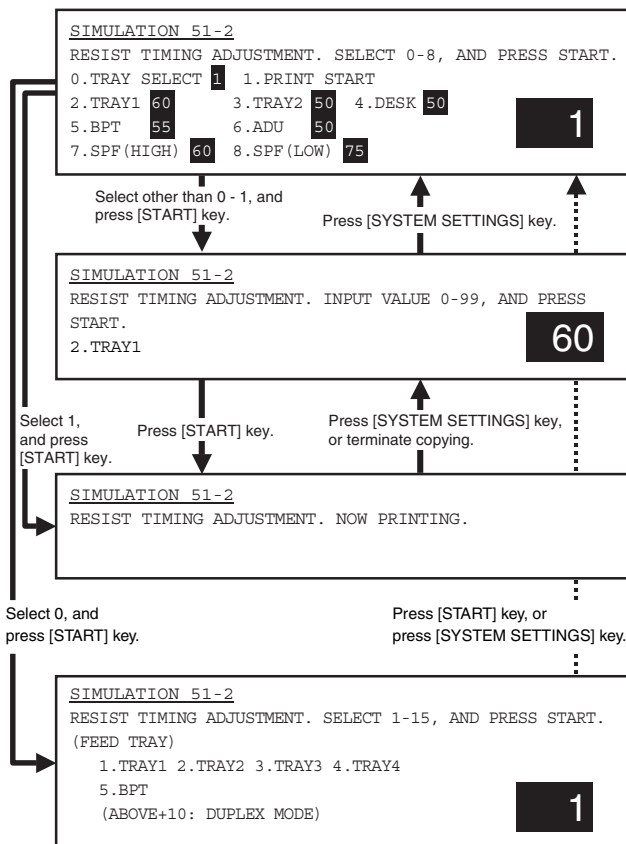
* To select paper (paper feed tray), perform the following procedures.

- 1) Enter 0 with 10-key.
- 2) Press [START] key. (The mode is changed to the paper feed tray selection mode.)
- 3) Enter the number corresponding to the paper feed tray to be used with 10-key.
- 4) Press [START] key. (The paper feed tray is selected.)

1	TRAY1	TRAY1
2	TRAY2	TRAY2
3	TRAY3	TRAY3
4	TRAY4	TRAY4
5	BPT	Manual feed

When the total of the above set value (1 - 5) and 10 is entered, the mode is changed to the duplex print mode.

NOTE: When [P] key is pressed after entering the adjustment value in this simulation, the adjustment value is set. When [START] key is pressed, the adjustment value is set and copying is performed.



53

53-6

Purpose	Adjustment
Function (Purpose)	Used to adjust the DSPF width detection level.
Section	
Item	Operation

Operation/Procedure

- Set the SPF paper feed guide to the max. position.
 - Select "MAX. POSITION" with 10-key.
 - Press [START] key.
The max. width detection level is recognized.
 - Press [SYSTEM SETTINGS] key.
 - Set the SPF paper feed guide to A4R size position.
 - Select POSITION 1 with 10-key.
 - Press [START] key.
The A4R width detection level is recognized.
 - Press [SYSTEM SETTINGS] key.
 - Set the SPF paper feed guide to A5R size position.
 - Select POSITION 2 with 10-key.
 - Press [START] key.
The A5R width detection level is recognized.
 - Press [SYSTEM SETTINGS] key.
 - Set the SPF paper feed guide to the min. position.
 - Select "MIN. POSITION" with 10-key.
 - Press [START] key.
The min. width detection level is recognized.
- If the above procedures are not completed normally, ERROR is displayed. When completed normally, COMPLETE is displayed.

53-7

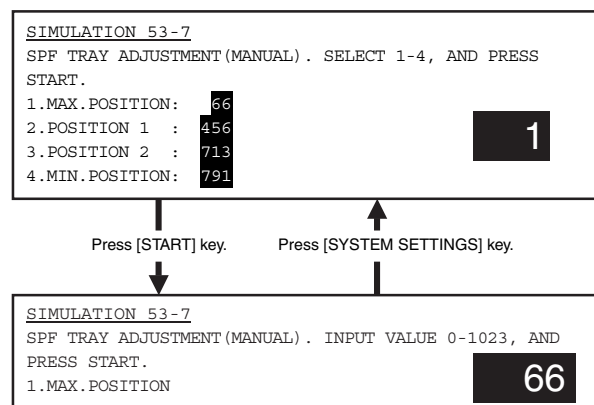
Purpose	Adjustment/Setup/Operation data output/Check (Display/Print)
Function (Purpose)	Used to enter the SPF width detection adjustment value.
Section	DSPF
Item	Operation

Operation/Procedure

- Enter the number corresponding to the set item with 10-key.

	Item	Set range	Default
1	MAX. POSITION	Max. width	66
2	POSITION 1	Adjustment position 1	456
3	POSITION 2	Adjustment position 2	713
4	MIN. POSITION	Min. width	791

- Press [START] key.
- Enter the set value with 10key.
- Press [START] key.



Purpose	Adjustment
Function (Purpose)	Used to adjust the document scan start position. (Used to adjust the scanner scan position in the SPF mode front scan.)

Operation/Procedure

(Automatic adjustment)

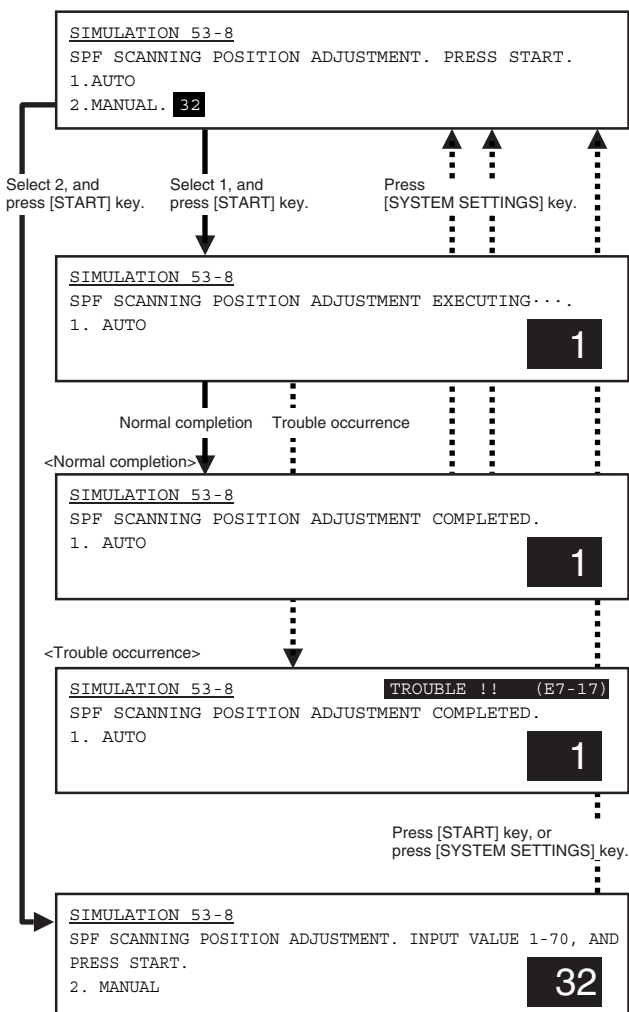
- 1) Select 1 or 2 with 10-key.
- 2) Press [START] key.

(Manual feed adjustment)

- 1) Enter the adjustment value with 10key.
- 2) Press [START] key.

When an adjustment error occurs, the trouble code (E7-17) is displayed simultaneously with "COMPLETED."

	Item		Set range	Default
1	AUTO	Automatic adjustment	—	—
2	MANUAL	Manual feed adjustment (Direct entry of a number)	1 - 70 (1 count: 0.1mm)	32

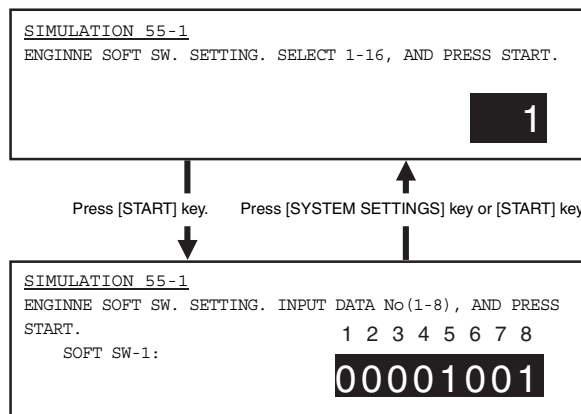


Purpose	Setting
Function (Purpose)	Used to set the specifications of the engine control operations. (PCU PWB)
Section	
Item	Operation Specifications

Operation/Procedure

This simulation is used to change and check the engine soft SW. Set this setting to the default.

There is no need to change this setting in the market.

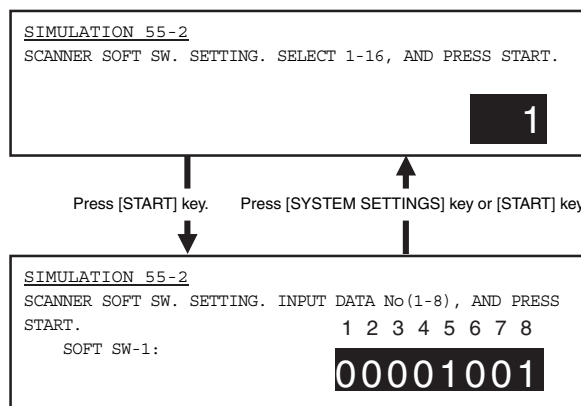


Purpose	Setting
Function (Purpose)	Used to set the specifications of the scanner control operations. (Scanner control PWB)
Section	
Item	Operation Specifications

Operation/Procedure

This simulation is used to change and check the scanner soft SW. Set this setting to the default.

There is no need to change this setting in the market.



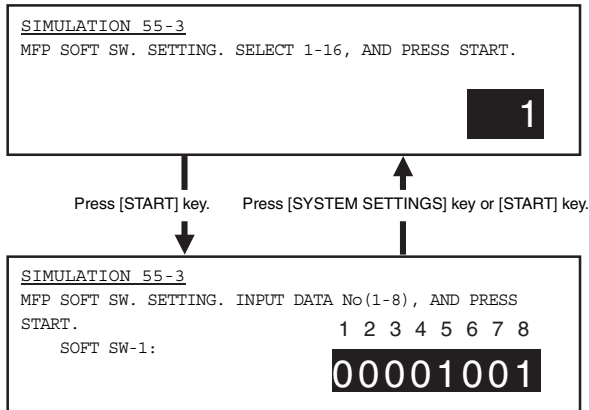
55-3

Purpose	Setting
Function (Purpose)	Used to set the specifications of the controller operations. (MFP control PWB)
Section	
Item	Operation Specifications

Operation/Procedure

This simulation is used to change and check the controller soft SW. Set this setting to the default.

There is no need to change this setting in the market.



56

56-1

Purpose	Data transfer
Function (Purpose)	Used to transfer the MFP controller data. (Used to repair the PWB.)
Section	MFP controller
Item	Data transfer

Operation/Procedure

- 1) Select the number corresponding to the data transfer mode with 10-key.

1	ALL (EEPROM, SRAM, FlashROM) → HDD	All the contents of memory are transferred to HDD. (Similar to execution of items 3 and 5.)
2	HDD → ALL (EEPROM, SRAM, FlashROM)	The HDD contents are transferred to all the memories. (Similar to execution of items 4 and 6.)
3	EEPROM → HDD	Transfer from EEPROM to HDD
4	HDD → EEPROM	Transfer from HDD to EEPROM
5	SRAM (+ FAX Memory, + Option Memory) → HDD	Transfer from SRAM to HDD. When, however, the FAX memory or an option memory (for FAX memory) * is installed, the contents of the Fax memory are also transferred to HDD.
6	HDD → SRAM (+ FAX Memory, + Option Memory)	Transfer from HDD to SRAM. When, however, the FAX memory or an option memory (for FAX memory) * is installed, the contents HDD are transferred to the FAX memory as well as the SRAM.
7	FontROM → HDD	Transfer from the font ROM to HDD

*: When Flash ROM or OP_Flash ROM is not installed, transfer is not made.

- 2) Press [START] key.

- 3) The confirmation menu is opened to confirm YES/NO of data transfer. Select one.

1	YES	Data transfer is executed.
2	NO	Data transfer is not executed.

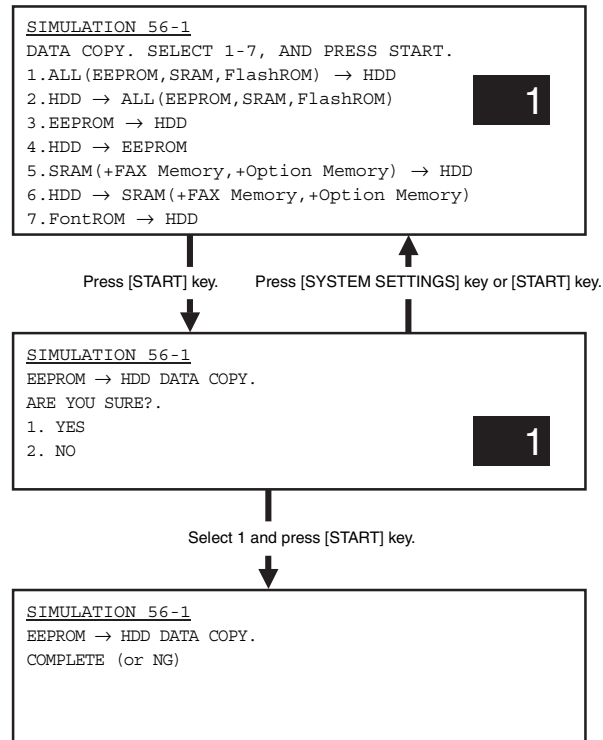
- 4) Press [START] key.

After completion of transfer, the transfer result is displayed.

If there is no error, the machine is automatically reset after completion of data transfer.

If there is an error, "NG" is displayed. (The machine is not reset.)

When restoring from HDD, fit the configurations of the Flash ROM and the optional Flash ROM at back-up.



60

60-1

Purpose	Operation test/Check
Function (Purpose)	Used to check the MFP control (DRAM) operations (read/write).
Section	ICU
Item	Operation

Operation/Procedure

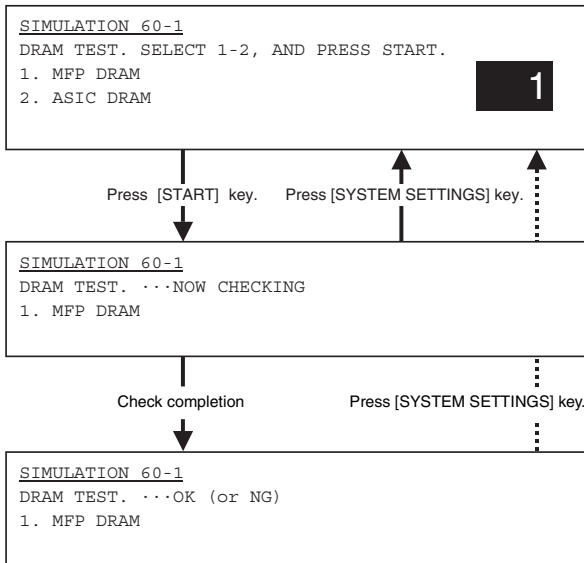
- 1) Enter the number corresponding to the memory to be checked with 10-key.

1	MFP DRAM	ERDH image memory
2	ASIC DRAM	ASIC image memory

- 2) Press [START] key.

The memory read/write operation is started.

After starting the operation, "NOW CHECKING" is displayed during checking. When read/write is normally completed, "OK" is displayed. If an error occurs, "NG" is displayed.



61

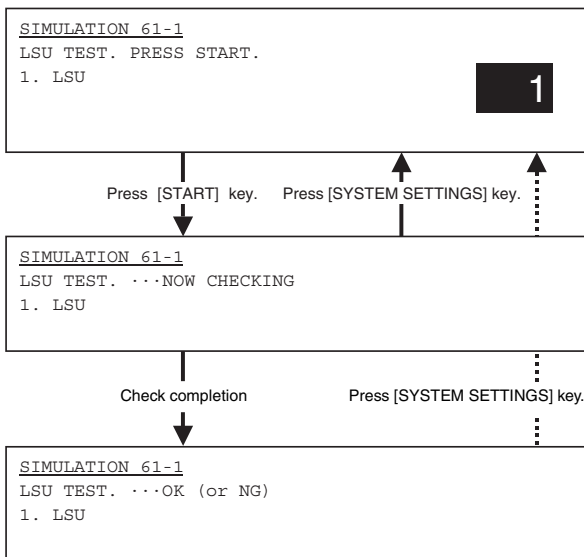
61-1

Purpose	Operation test/Check
Function (Purpose)	Used to check the operation of the scanner (write) unit (LSU).
Section	Scanner (write) unit (LSU)
Item	Operation

Operation/Procedure

Used to check if the LSU delivers output of the sync signal (HSYNC/) or not.

"NOW CHECKING" is displayed during checking. When the test is normally completed, "OK" is displayed. If an error occurs, "NG" is displayed.



61-2

Purpose	Adjustment
Function (Purpose)	Used to adjust the laser power (absolute value) in the copy mode.
Section	Scanner (write) unit (LSU)
Item	Operation

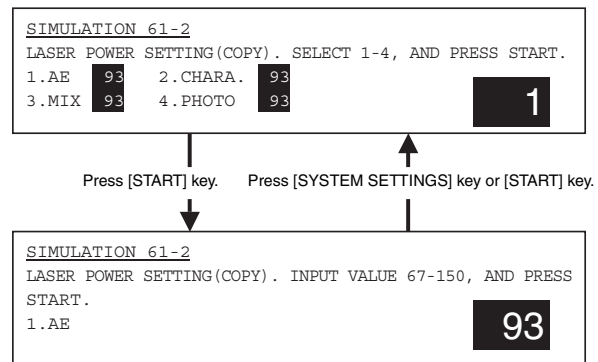
Operation/Procedure

- 1) Select the number corresponding to the adjustment mode with 10-key.

Item			Set range	Default	
				MX-M350	MX-M450
1	AE	Auto exposure mode	67 - 150	76	93
2	CHARA.	Text mode			
3	MIX	Text/Photo mode			
4	PHOTO	Photo mode			

- 2) Press [START] key.
- 3) Enter the adjustment value with 10-key.
- 4) Enter [START] key.

NOTE: Be sure to set the default value. If not, a trouble may occur in the LSU.



61-3

Purpose	Adjustment
Function (Purpose)	Used to adjust the laser power (absolute value) in the FAX mode.
Section	Scanner (write) unit (LSU)
Item	Operation

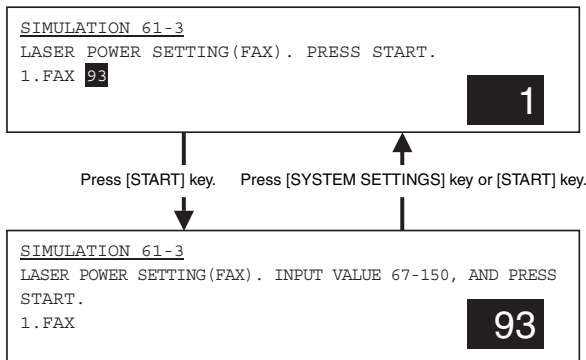
Operation/Procedure

- 1) Select the number corresponding to the adjustment mode with 10-key.
- 2) Press [START] key.
- 3) Enter the adjustment value with 10-key.

Set range	67 - 150
Default	76 (MX-M350) 93 (MX-M450)

- 4) Enter [START] key.

NOTE: Be sure to set the default value. If not, a trouble may occur in the LSU.



61-4

Purpose	Adjustment
Function (Purpose)	Used to adjust the laser power (absolute value) in the printer mode.
Section	Scanner (write) unit (LSU)
Item	Operation

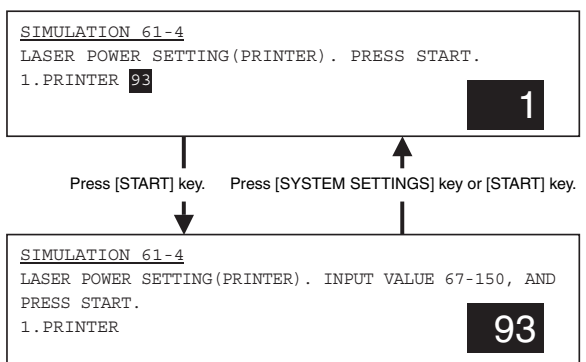
Operation/Procedure

- 1) Select the number corresponding to the adjustment mode with 10-key.
- 2) Press [START] key.
- 3) Enter the adjustment value with 10-key.

Set range	67-150
Default	76 (MX-M350) 93 (MX-M450)

- 4) Enter [START] key.

NOTE: Be sure to set the default value. If not, a trouble may occur in the LSU.



62

62-1

Purpose	Data clear
Function (Purpose)	Used to format the hard disk. (Only in the model with a disk installed)
Section	MFP controller (HDD)
Item	Clear

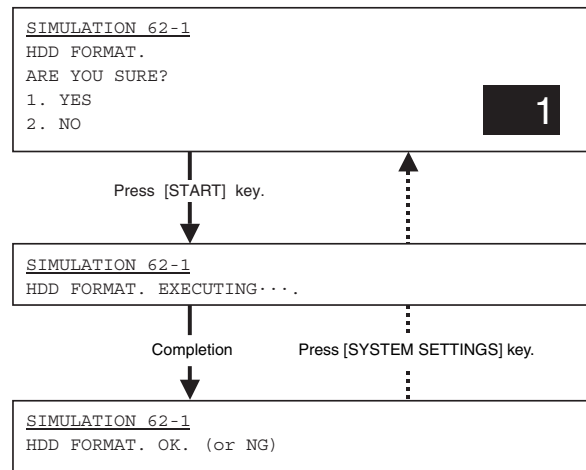
Operation/Procedure

- 1) Select YES/NO of hard disk format.

1	YES	Execution
2	NO	Cancel

- 2) Press [START] key.

During formatting, "EXECUTING" is displayed. When formatting is completed normally, "OK" is displayed. If not, "NG" is displayed.



62-2

Purpose	Operation test/Check
Function (Purpose)	Used to check the operation of the hard disk (read/write). (Only in the model with a disk installed) (Partial check)
Section	MFP controller (HDD)
Item	Operation

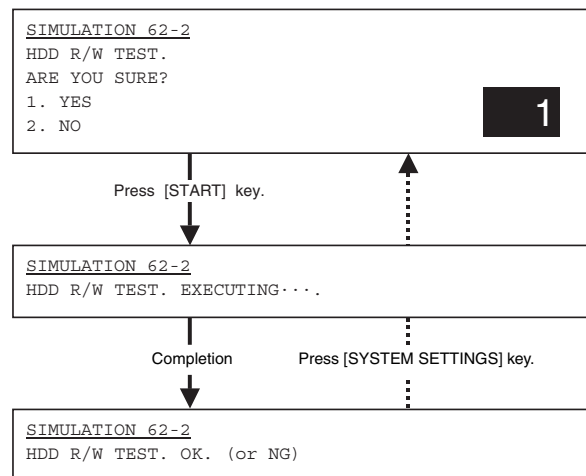
Operation/Procedure

- 1) Select YES/NO of hard disk read/write check.

1	YES	Execution
2	NO	Cancel

- 2) Press [START] key.

During testing, "EXECUTING" is displayed. When test is completed normally, "OK" is displayed. If not, "NG" is displayed.



62-3

Purpose	Operation test/Check
Function (Purpose)	Used to check the operation of the hard disk (read/write). (Only in the model with a disk installed) (All areas check)
Section	MFP controller (HDD)
Item	Operation

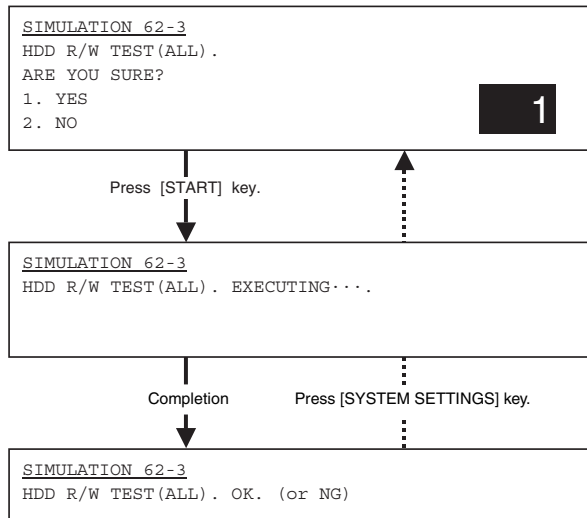
Operation/Procedure

- 1) Select YES/NO of hard disk read/write check.

1	YES	Execution
2	NO	Cancel

- 2) Press [START] key.

During testing, "EXECUTING" is displayed. When test is completed normally, "OK" is displayed. If not, "NG" is displayed.



62-6

Purpose	Operation test/Check
Function (Purpose)	Used to check the operations of the hard disk. (The self diag operation of the SMART function is executed.) (Only in the model with a disk installed)
Section	MFP controller (HDD)
Item	Clear

Operation/Procedure

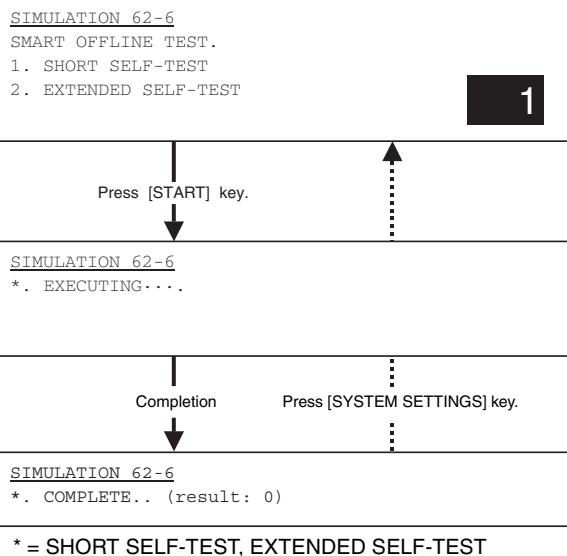
- 1) Select the number corresponding to the self diag check mode.

1	SHORT SELF-TEST	Partial test
2	EXTENDED SELF-TEST	All areas test

- 2) Press [START] key.

During the self diag operation, "EXECUTING" is displayed.

If the self diag is completed normally, "0" is displayed. If not, any value but 0 is displayed.



62-7

Purpose	Operation test/Check
Function (Purpose)	Used to check the operations of the hard disk. (The result of the self diag operation of the SMART function is printed out.) (Only in the model with a disk installed)
Section	MFP controller (HDD)
Item	Clear

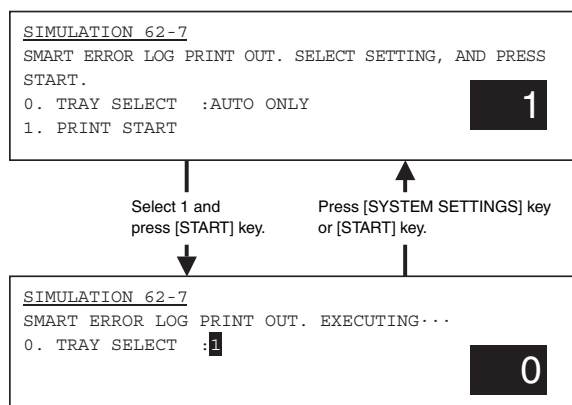
Operation/Procedure

- 1) Enter 1 with 10-key.

0	TRAY SELECT	Tray select auto only (Selection inhibited)
1	PRINT START	Print start

- 2) Press [START] key.

The result of the hard disk operation check (the self diag operation of the SMART function) is printed out.



62-8

Purpose	Data clear
Function (Purpose)	Used to format the hard disk (the system area excluded). (Only in the model with a disk installed)
Section	MFP controller (HDD)
Item	Clear

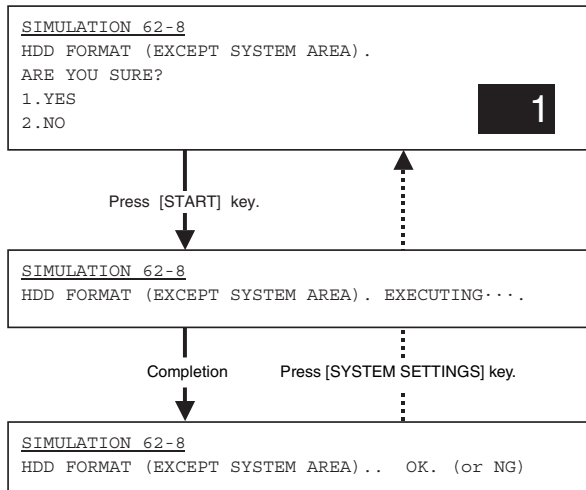
Operation/Procedure

- 1) Select YES/NO of hard disk (the system area excluded) format.

1	YES	Execution
2	NO	Cancel

- 2) Press [START] key.

During formatting, "EXECUTING" is displayed. When formatting is completed normally, "OK" is displayed. If not, "NG" is displayed.



62-9

Purpose	Data clear
Function (Purpose)	Used to format the hard disk (the system area). (Only in the model with a disk installed)
Section	MFP controller (HDD)
Item	Clear

Operation/Procedure

- 1) Select YES/NO of hard disk (the system area) format.

1	YES	Execution
2	NO	Cancel

- 2) Press [START] key.

62-10

Purpose	Data clear
Function (Purpose)	Used to delete a job complete list (also to delete job log data) (Only in the model with a disk installed)
Section	MFP controller (HDD)
Item	Clear

Operation/Procedure

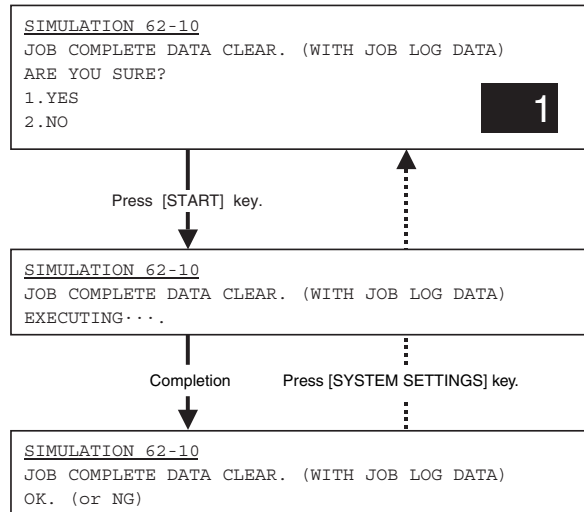
- 1) Select YES/NO of deleting the job complete list.

1	YES	Execution
2	NO	Cancel

- 2) Press [START] key.

During formatting, "EXECUTING" is displayed. When formatting is completed normally, "OK" is displayed. If not, "NG" is displayed.

NOTE: When executed, this function also deletes the complete queues of E-MAIL, FAX and Internet FAX, reservation data associated with the image send function, bulletin board data, and confidential data.



62-11

Purpose	Data clear
Function (Purpose)	Used to delete document filing data. (The management area (standard folder, user folder) is cleared.) (Only in the model with a disk installed)
Section	MFP controller (HDD)
Item	Clear

Operation/Procedure

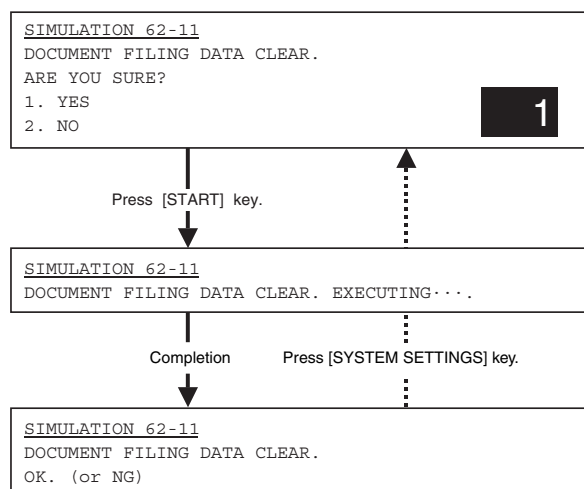
- 1) Select YES/NO of deleting the document filing data.

1	YES	Execution
2	NO	Cancel

- 2) Press [START] key.

During formatting, "EXECUTING" is displayed. When formatting is completed normally, "OK" is displayed. If not, "NG" is displayed.

NOTE: When executed, this function internally executes the same function as SIM66-10; deleting reservation data, bulletin board data, and confidential data.



63-1

Purpose	Adjustment/Setup/Operation data output/Check (Display/Print)
Function (Purpose)	Used to check the result of shading correction. (The shading correction data are displayed.)
Section	Optical (Image scanning)
Item	Operation

Operation/Procedure

CCD data	
Values	Description
ODD GAIN	Od pixel gain adjustment value
EVEN GAIN	Even pixel gain adjustment value
MAX	All pixel MAX
MIN	All pixel MIN
AVE	All pixel average
OFFSET	All offset
CIS data : Only when DSPF installed	
Values	Description
GAIN	Gain adjustment value
MAX	Pixel MAX
MIN	Pixel MIN
AVE	Pixel average
OFFSET	Black offset
DEV	Standard deviation

SIMULATION 63-1
SHADING DATA DISPLAY.
(CCD)
ODD GAIN: 128
EVEN GAIN: 128 OFFSET: 126 MAX.: 128
MIN.: 128 AVE.: 128

(CIS)
GAIN: 128 OFFSET: 128 MAX.: 128
MIN.: 128 AVE.: 128 DEV.: 128

63-2

Purpose	Adjustment
Function (Purpose)	Used to execute shading.
Section	Optical (Image scanning)
Item	Operation

Operation/Procedure

- 1) Enter the number corresponding to the shading mode to be executed.

1	OC SHADING	OC analog level correction and shading correction (Document table mode)
2	DSPF SHADING	DSPF analog level correction and shading correction

- 2) Press [START] key.

During execution, "EXECUTING" is displayed. When execution is completed normally, "COMPLETED" is displayed.

SIMULATION 63-2
SHADING EXECUTION. SELECT1-2, AND PRESS START.
1. OC SHADING
2. DSPF SHADING

Press [START] key.

SIMULATION 63-2
SHADING EXECUTING....
1. OC SHADING

Completion

Press [SYSTEM SETTINGS] key.

SIMULATION 63-2
SHADING COMPLETED.
1. OC SHADING

63-7

Purpose	Adjustment
Function (Purpose)	Used to adjust the white plate scan start position for shading. (Document table mode)
Section	Laser (Exposure)
Item	Operation

Operation/Procedure

- 1) Enter 1 with 10-key.
- 2) Press [START] key.
- 3) Enter the adjustment value with 10-key.
- 4) Press [START] key.

When a shading error occurs, this adjustment value is changed.

Item		Set range	Default
1	CCD	CCD scan	1 - 16
			6

SIMULATION 63-7
SHADING POSITION ADJUSTMENT. PRESS START.
1. CCD 6

Press [START] key.

Press [SYSTEM SETTINGS] key or [START] key.

SIMULATION 63-7
SHADING POSITION ADJUSTMENT. INPUT VALUE 1-16, AND PRESS START.
1. CCD

Purpose	Operation test/Check
Function (Purpose)	Used to check the operation of the printer section (self-print operation), (The print pattern, the paper feed mode, the print mode, the print quantity, and the density can be optionally set.)
Item	Operation

Operation/Procedure

(Various print patterns output) (Table 1)

- 1) Select PRINT PATTERN with 10-key.
- 2) Enter the number corresponding to the print pattern to be printed with 10-key.
- 3) Press [START] key.
- 4) Select PRINT START with 10-key.
- 5) Press [START] key.

(Print condition setting in this simulation)

* To select paper (paper feed tray), perform the following procedures.

- 1) Select TRAY SELECT with 10-key.
- 2) Press [START] key.
- 3) Enter the number corresponding to the paper feed tray of the target paper with 10-key.
- 4) Press [START] key. (The paper feed tray is selected.)

* To adjust the print density, perform the following procedures.

- 1) Select DENSITY with 10-key.
- 2) Enter the adjustment value with 10-key.
- 3) Press [START] key.

* To set the print quantity, perform the following procedures.

- 1) Select MULTI with 10-key.
- 2) Enter the print quantity with 10-key.
- 3) Press [START] key.

* To set the print quality mode, perform the following procedures.

- 1) Select MODE with 10-key.
- 2) Enter the number corresponding to the print quality mode with 10-key.
- 3) Press [START] key.

* To set the print level, perform the following procedures.

- 1) Select LEVEL with 10-key.
- 2) Enter the adjustment value with 10-key.
- 3) Press [START] key.

NOTE: In some print patterns, changing the level may not change the picture quality.

* To set duplex/simplex print, perform the following procedures.

- 1) Select DUPLEX with 10-key.
- 2) Enter the number corresponding to the operation mode with 10-key.
- 3) Press [START] key.

(Table 1)

0	TRAY SELECT 1. TRAY1 2. TRAY2 3. TRAY3 4. TRAY4 5. BPT	Paper feed tray 1: Tray 1 2: Tray 2 3: Tray 3 4: Tray 4 5: Manual feed
1	PRINT START	Print execution (Printing of the set data is executed.)
2	PRINT PATTERN	Print pattern (Note 1)
3	DENSITY	Graphic density (Valid only when No. 79, 80 or 84 is selected.)
4	MULTI	Print quantity

5	MODE 1. STANDARD 2. SMOOTHING 3. TONER SAVE 4. HALF TONE 5. SMOOTHING + TONER SAVE 6. SMOOTHING + HALF TONE 7. TONER SAVE + HALF TONE 8. SMOOTHING + TONER SAVE + HALF TONE	Print mode 1. Standard 2. Smoothing ON 3. Smoothing ON 3. Toner save ON 4. Half tone ON 5. Smoothing + toner save 6. Smoothing + half tone 7. Toner save + half tone 8. Smoothing + toner save + half tone
6	LEVEL	(Parameter of print image process)
7	DUPLEX 1. NO 2. YES	Duplex 0: NO (Simplex) 1: YES (Duplex)

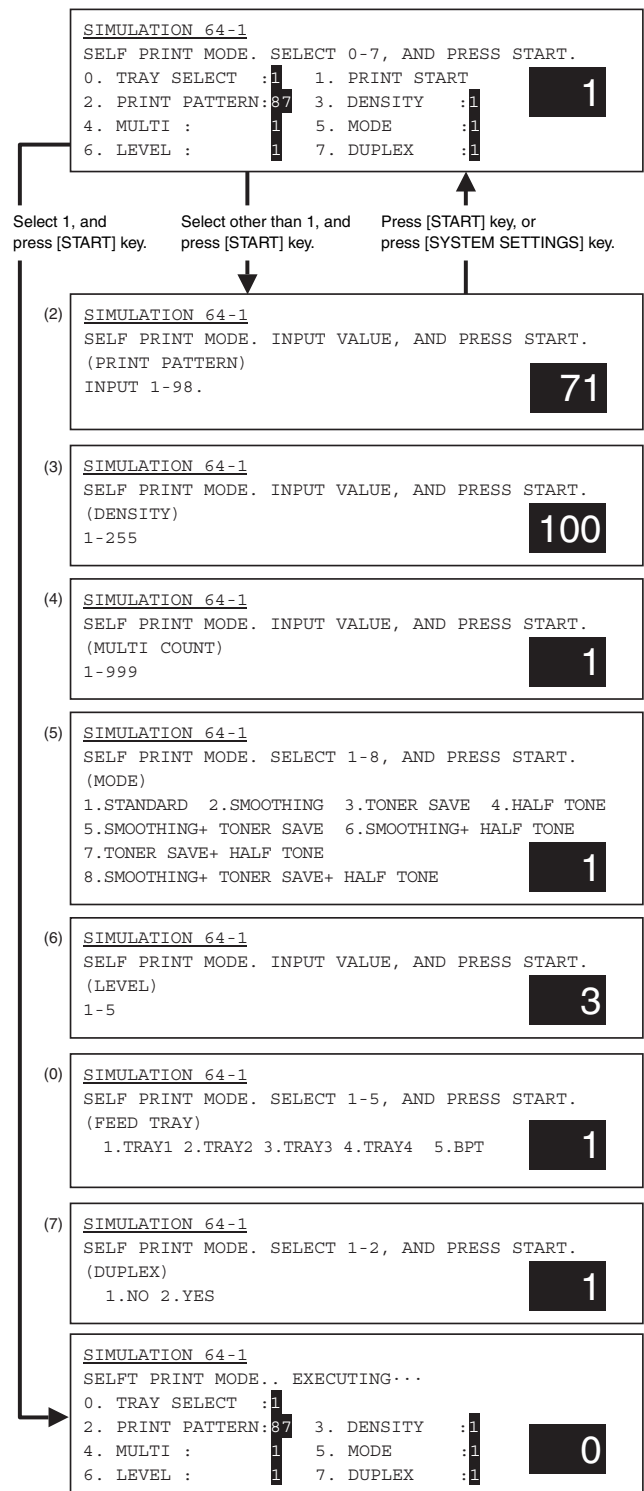
(Note 1) Print pattern

No	Engine pattern	Controller	Pattern	Note
1	○		For off-center adjustment	
2	○		Main scanning direction 1 by 5	
3	○		Main scanning direction 1mm-pitch	
4	○		Main scanning direction 3 by 3	
5	○		Sub scanning direction 1 by 1	
6	○		Sub scanning direction 1 by 5	
7	○		Sub scanning direction 2 by 4	
8	○		Sub scanning direction 3 by 3	
9	○		Right oblique 1 by 2	
10	○		Right oblique 1 by 5	
11	○		Right oblique 2 by 4	
12	○		Right oblique 3 by 3	
13	○		Left oblique 1 by 2	
14	○		Left oblique 1 by 5	
15	○		Left oblique 2 by 4	
16	○		Left oblique 3 by 3	
17	○		Dot 1 by 1	
18	○		Dot 3 by 3	
19	○		Dot	
20	○		Solid black	
21	○		Main scanning direction 1 by 1	
22	○		Main scanning direction 5 by 1	
23	○		Main scanning direction 4 by 2	
24	○		Main scanning direction 3 by 3	
25	○		Sub scanning direction 1 by 1	
26	○		Sub scanning direction 5 by 1	
27	○		Sub scanning direction 4 by 2	
28	○		Sub scanning direction 3 by 3	
29	○		Right oblique 2 by 1	
30	○		Right oblique 5 by 1	
31	○		Right oblique 4 by 2	
32	○		Right oblique 3 by 3	
33	○		Left oblique 2 by 1	
34	○		Left oblique 5 by 1	
35	○		Left oblique 4 by 2	
36	○		Left oblique 3 by 3	
37	○		Dot 1 by 1	
38	○		Dot 3 by 3	
39	○		Dot	
40	○		Solid white	
50	○		All surface 1 by 1 (Vertical)	
51	○		All surface 1 by 1 (Horizontal)	
52	○		All surface 1 by 2 (Vertical)	
53	○		All surface 1 by 2 (Horizontal)	
54	○		All surface 1 by 3 (Vertical)	
55	○		All surface 1 by 3 (Horizontal)	
56	○		All surface 1 by 4 (Vertical)	
57	○		All surface 1 by 4 (Horizontal)	

No	Engine pattern	Controller	Pattern	Note
58		☐	All surface 1 by 5 (Vertical)	
59		☐	All surface 1 by 5 (Horizontal)	
60		☐	All surface 2 by 2 (Vertical)	
61		☐	All surface 2 by 2 (Horizontal)	
62		☐	All surface 2 by 3 (Vertical)	
63		☐	All surface 2 by 3 (Horizontal)	
64		☐	All background	
65		☐	Special pattern	
66		☐	For every other 1 block width 128 pixels/ 32 gradations	
67		☐	For every other 1 block width 128 pixels/ 16 gradations	
68		☐	For every other 1 block width 128 pixels/ 8 gradations	
69		☐	1-dot pattern	
70		☐	Print adjustment pattern with scale (Vertical)	
71		☐	Grid pattern	
72		☐	Slant line 45 degrees	
73		☐	Slant line 26.6 degrees	
74		☐	Slant line 63.4 degrees	
75		☐	ID/BG pattern	
76		☐	Dot pattern 12.5%	
77		☐	Dot pattern 28%	
78		☐	Dot pattern 50%	
79		☐	All surface effort diffusion background	
80		☐	All surface dither process background	
81		☐	For every other 1 block width 128 pixels/ 32 gradations	
82		☐	For every other 1 block width 128 pixels/ 16 gradations	
83		☐	For every other 1 block width 128 pixels/ 8 gradations	
84		☐	Memory check pattern	
85		☐	Cleaning check pattern	
86		☐	Offset check pattern	
87		☐	Text pattern A	Note *
88		☐	Text pattern B	Note *
89		☐	Text pattern C	Note *
90			Toner quantity measuring chart	
91			Radiation chart	
98			Data printing	

☐: Error diffusion process

Note*: Since the "DENSITY" of an actual copy or printer output differs, they differ from the output of self print.



65

65-1

Purpose	Adjustment
Function (Purpose)	Used to adjust the touch panel (LCD display section) detection position.
Section	Operation (Display/Operation key)
Item	

Operation/Procedure

Touch the four cross marks (+) sequentially. The coordinates of pressed positions are set.

When the coordinates setting is completed normally, the display turns gray. When all the four points are set, the display returns to the normal state.

SIMULATION 65-1



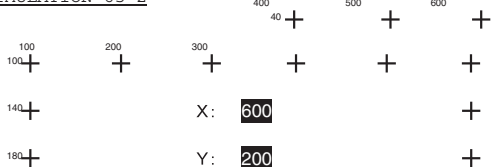
65-2

Purpose	Adjustment/Setup/Operation data output/Check (Display/Print)
Function (Purpose)	Used to check the result of the touch panel (LCD display) detection position adjustment. (The coordinates are displayed.)
Section	Operation (Display/Operation key)
Item	

Operation/Procedure

When the touch panel is touched, the X and Y coordinate values of the touched point and the coordinate values of the specified point are displayed. The coordinate values set with SIM 65-1 are used as the reference.

SIMULATION 65-2



66

66-1

Purpose	Setting
Function (Purpose)	Used to change and check the FAX soft switch functions. (Used to change and check the functions provided for the FAX soft switches.) (Only when FAX is installed)
Section	FAX
Item	

Operation/Procedure

Setting of soft switches other than SW1 can be changed and checked.

- 1) Enter the soft switch number to be checked or changed with 10-key.
The current set state is displayed.

- 2) Enter the number corresponding to the bit to be changed with 10-key.
(Example) When the bit of 5 is to be changed, enter 5.
The set value of 1/0 is alternatively changed every time when the target key is pressed.
- 3) After completion of setting of all the bits, press [START] key.

SIMULATION 66-1

FAX SOFT SW. SETTING. SELECT 2-120, AND PRESS START.

1

Press [START] key. Press [SYSTEM SETTINGS] key or [START] key.

SIMULATION 66-1

FAX SOFT SW. SETTING. INPUT DATA No(1-8), AND PRESS START.

SOFT SW-2:

1 2 3 4 5 6 7 8
00001001

66-2

Purpose	Data clear
Function (Purpose)	Used to clear the FAX soft switch function data and to set to the default. (Excluding the adjustment values.) (Only when FAX is installed)
Section	FAX
Item	Data

Operation/Procedure

- 1) Set the destination code with 10-key.

Japan	0 0 0 0 0 0 0 0	Finland	0 0 1 1 1 1 0 0
U.S.A.	1 0 1 1 0 1 0 1	Norway	1 0 0 0 0 0 1 0
Australia	0 0 0 0 1 0 0 1	Denmark	0 0 1 1 0 0 0 1
U.K.	1 0 1 1 0 1 0 0	Netherlands	0 1 1 1 1 0 1 1
France	0 0 1 1 1 1 0 1	Italy	0 1 0 1 1 0 0 1
Germany	0 0 0 0 0 1 0 0	Switzerland	1 0 1 0 0 1 1 0
Sweden	1 0 1 0 0 1 0 1	Austria	0 0 0 0 1 0 1 0
Newzealand	0 1 1 1 1 1 1 0	Indonesia	0 1 0 1 0 1 0 0
China	0 0 1 0 0 1 1 0	Thailand	1 0 1 0 1 0 0 1
Singapore	1 0 0 1 1 1 0 0	Malaysia	0 1 1 0 1 1 0 0
TW	1 1 1 1 1 1 1 0	India	0 1 0 1 0 0 1 1
Other1	1 1 1 1 1 1 0 1	Philippines	1 0 0 0 1 0 0 1
Other2	1 1 1 1 1 1 0 0	Hongkong	0 1 0 1 0 0 0 0
Other3	1 1 1 1 1 0 1 1		

The codes other than the above are recognized as Japan.

- 2) Press [START] key.
- 3) The confirmation menu of YES/NO of clear is displayed. Select one.

1	YES	FAX soft SW is cleared.
2	NO	Not cleared.

- 4) Press [START] key.

The soft switch (except for the adjustment values) is cleared according to the destination selected in procedure 1).

NOTE: When the FAX BOX is not installed, initialization including the adjustment value is performed. (The adjustment value is stored in the FAX BOX.)

SIMULATION 66-2
FAX SOFT SW. CLEAR (WITHOUT ADJUSTMENT VALUE).
INPUT COUNTRY CODE, AND PRESS START.

1 2 3 4 5 6 7 8
00000000

Press [START] key.

SIMULATION 66-2
FAX SOFT SW. CLEAR.
ARE YOU SURE?

JAPAN

1: YES
2: NO

1

66-3

Purpose	Operation test/Check
Function (Purpose)	Used to check the operation of the FAX PWB memory (read/write). (This adjustment is required when the PWB is replaced with a new one.) (Only when FAX is installed)
Section	FAX
Item	Data

Operation/Procedure

- 1) Enter the number corresponding to the memory to be checked with 10-key.
- 2) Press [START] key.

In the case of All, all memories are checked only once.

Check connection wire list	
NO CHECK	Not checked yet.
CHECKING	Checking
OK	Check complete OK
NG	Check complete NG

The error address or the data line is displayed individually.

Target memory of check	
MFP SRAM	SRAM
MFP FLASH	FLASH ROM
MFP OP.FLASH	
MODEM EEPROM	
MODEM SRAM (G/A)	
MODEM SDRAM1	
MODEM SDRAM2	

When "repeat" is selected, the operation is repeated until the result is "NG" or [SYSTEM SETTINGS] key is pressed.

SIMULATION 66-3

FAX PWB MEMORY CHECK INPUT 1-13, AND PRESS START.

1. All Memory Device Check (once)
2. MFP SRAM (once)
3. MFP SRAM (repeat)
4. MFP FLASH+ OP.FLASH (once)
5. MFP FLASH+ OP.FLASH (repeat)
6. MODEM EEPROM (once)
7. MODEM EEPROM (repeat)
8. MODEM SRAM (G/A) (once)
9. MODEM SRAM (G/A) (repeat)
10. MODEM SDRAM1 (once)
11. MODEM SDRAM1 (repeat)
12. MODEM SDRAM2 (once)
13. MODEM SDRAM2 (repeat)

Press [START] key.

Press [SYSTEM SETTINGS] key.

SIMULATION 66-3

FAX PWB MEMORY CHECK
MFP SRAM: CHECKING
MFP FLASH: NO CHECK
MFP OP.FLASH: NO CHECK
MODEM EEPROM: NG:A0010000
MODEM SRAM (G/A): NO CHECK
MODEM SDRAM1: NG A11
MODEM SDRAM2: OK

When "repeat" is selected and
[SYSTEM SETTINGS] key is pressed.

When Check is "once," the display stops at the result display.
When [SYSTEM SETTINGS] key is pressed, the display returns to the initial display.

66-4

Purpose	Operation test/Check
Function (Purpose)	Used to check the output operation of data signals in each data output mode of FAX. (Used to check the operation of MODEM.) Send level: Max. (Only when FAX is installed)
Section	FAX
Item	Operation

Operation/Procedure

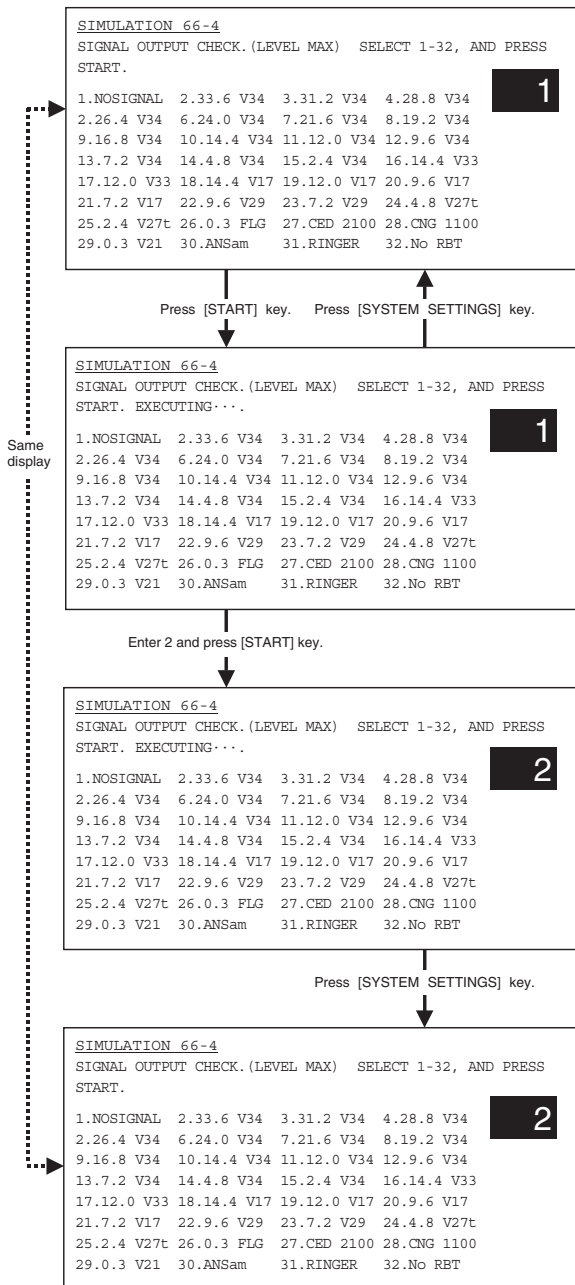
- 1) Enter the number corresponding to the output mode with 10-key.
- 2) Press [START] key.

The output is delivered at the max. send level.

1	NOSIGNAL	No signal	17	12.0 V33	12.0 V33
2	33.6 V34	26.4 V34	18	14.4 V17	14.4 V17
3	31.2 V34	31.2 V34	19	12.0 V17	12.0 V17
4	28.8 V34	28.8 V34	20	9.6 V17	9.6 V17
5	26.4 V34	26.4 V34	21	7.2 V17	7.2 V17
6	24.0 V34	24.0 V34	22	9.6 V29	9.6 V29
7	21.6 V34	21.6 V34	23	7.2 V29	7.2 V29
8	19.2 V34	19.2 V34	24	4.8 V27t	4.8 V27t
9	16.8 V34	16.8 V34	25	2.4 V27t	2.4 V27t
10	14.4 V34	14.4 V34	26	0.3 FLG	0.3 FLG
11	12.0 V34	12.0 V34	27	CED 2100	CED 2100
12	9.6 V34	9.6 V34	28	CNG 1100	CNG 1100
13	7.2 V34	7.2 V34	29	0.3 V21	0.3 V21
14	4.8 V34	4.8 V34	30	ANSam	ANSam
15	2.4 V34	2.4 V34	31	RINGER	RINGER
16	14.4 V33	14.4 V33	32	No RBT	No RBT

When [SYSTEM SETTINGS] key is pressed during execution, execution is stopped.

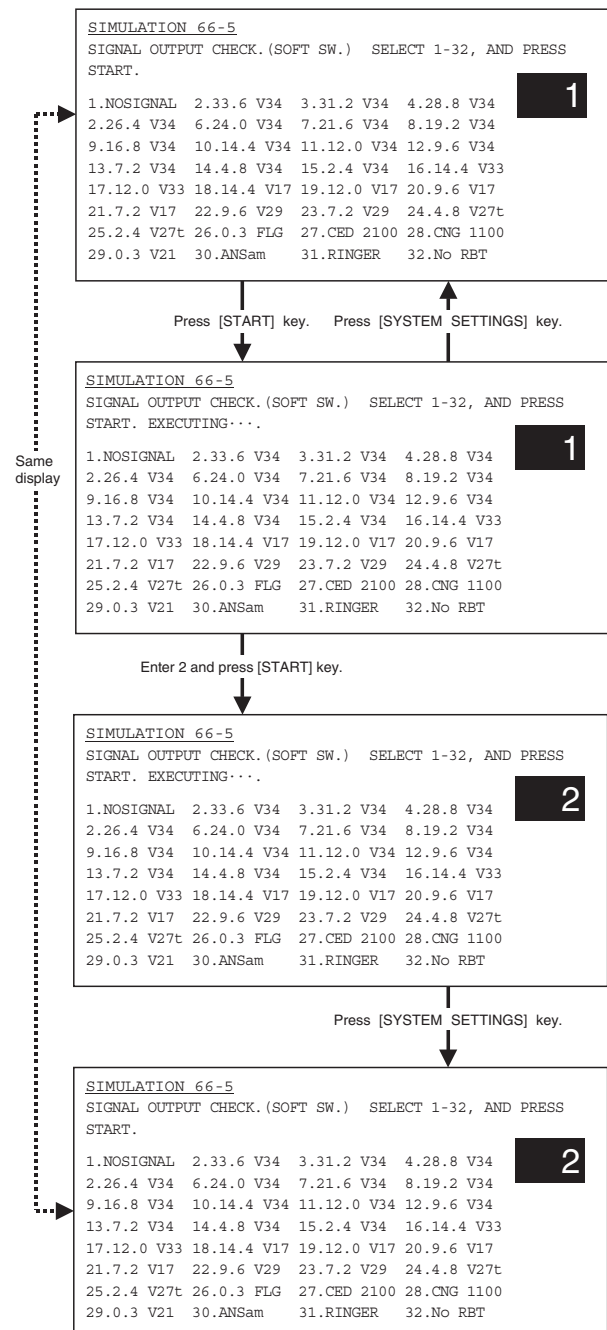
When a number is entered and [START] key is pressed during execution, the kind of signal can be changed.



1	NOSIGNAL	No signal	17	12.0 V33	12.0 V33
2	33.6 V34	26.4 V34	18	14.4 V17	14.4 V17
3	31.2 V34	31.2 V34	19	12.0 V17	12.0 V17
4	28.8 V34	28.8 V34	20	9.6 V17	9.6 V17
5	26.4 V34	26.4 V34	21	7.2 V17	7.2 V17
6	24.0 V34	24.0 V34	22	9.6 V29	9.6 V29
7	21.6 V34	21.6 V34	23	7.2 V29	7.2 V29
8	19.2 V34	19.2 V34	24	4.8 V27t	4.8 V27t
9	16.8 V34	16.8 V34	25	2.4 V27t	2.4 V27t
10	14.4 V34	14.4 V34	26	0.3 FLG	0.3 FLG
11	12.0 V34	12.0 V34	27	CED 2100	CED 2100
12	9.6 V34	9.6 V34	28	CNG 1100	CNG 1100
13	7.2 V34	7.2 V34	29	0.3 V21	0.3 V21
14	4.8 V34	4.8 V34	30	ANSam	ANSam
15	2.4 V34	2.4 V34	31	RINGER	RINGER
16	14.4 V33	14.4 V33	32	No RBT	No RBT

When [SYSTEM SETTINGS] key is pressed during execution, execution is stopped.

When a number is entered and [START] key is pressed during execution, the kind of signal can be changed.



66-5

Purpose	Operation test/Check
Function (Purpose)	Used to check the output operation of data signals in each data output mode of FAX. (Used to check the operation of MODEM.) An output is sent at the send level set by the soft switch. (Only when FAX is installed)
Section	FAX
Item	Operation

Operation/Procedure

- 1) Enter the number corresponding to the output mode with 10-key.
- 2) Press [START] key.

The output is delivered at the send level set with the soft switch.

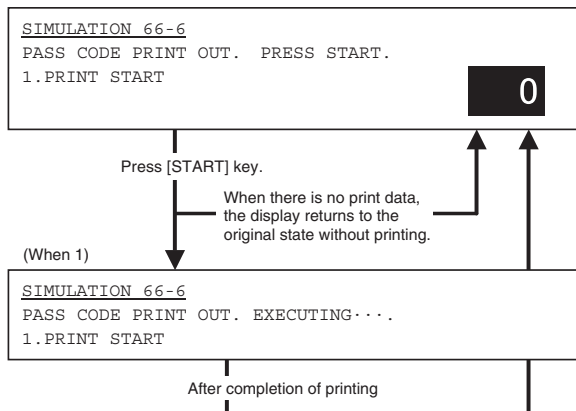
66-6

Purpose	User data output/Check (Display/Print)
Function (Purpose)	Used to print the confidential pass code. (Used when the confidential pass code is forgotten.) (Only when FAX is installed)
Section	FAX
Item	Data

Operation/Procedure

1	PRINT START	Print start
---	-------------	-------------

The paper is automatically selected with the size saved in the image memory.



66-7

Purpose	User data output/Check (Display/Print)
Function (Purpose)	Used to print the image memory data (memory send/receive). (Only when FAX is installed)
Section	FAX
Item	Data

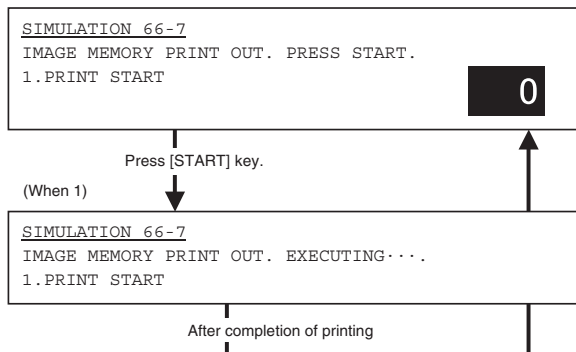
Operation/Procedure

All image data stored in the image memory are printed.

* The confidential receive data are also printed.

1	PRINT START	Print start
---	-------------	-------------

The paper is automatically selected with the size saved in the image memory.



66-8

Purpose	Operation test/Check
Function (Purpose)	Used to check the output operation of various sound signals of FAX. (Used to check the operation of the sound output IC.) Send level: Max. (Only when FAX is installed)
Section	FAX
Item	Operation

Operation/Procedure

1) Enter the number corresponding to the output mode with 10-key.

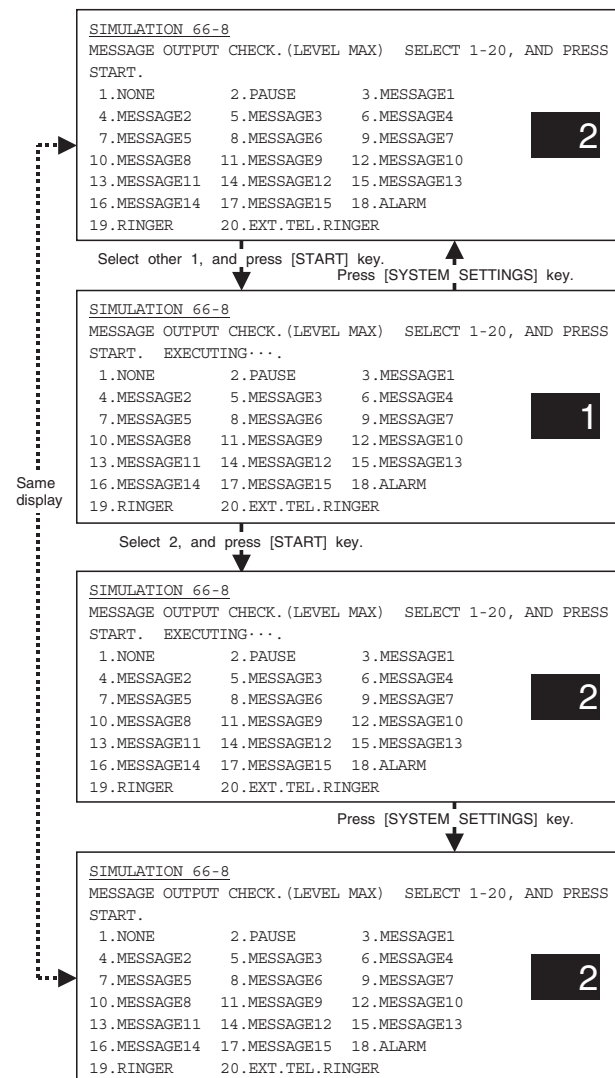
2) Press [START] key.

The output is delivered at the max. level.

1	NONE	Mute	11	MESSAGE 9	Message 9
2	PAUSE	Pause sound	12	MESSAGE 10	Message 10
3	MESSAGE1	Message 1	13	MESSAGE 11	Message 11
4	MESSAGE2	Message 2	14	MESSAGE 12	Message 12
5	MESSAGE3	Message 3	15	MESSAGE 13	Message 13
6	MESSAGE4	Message 4	16	MESSAGE 14	Message 14
7	MESSAGE5	Message 5	17	MESSAGE 15	Message 15
8	MESSAGE6	Message 6	18	ALARM	Alarm
9	MESSAGE7	Message 7	19	RINGER	Call ring
10	MESSAGE8	Message 8	20	EXT.TEL.RINGER	External TEL ring

When the number is entered during execution, the kind of signal can be changed.

When [START] key is pressed, the voice message is sent. When [SYSTEM SETTINGS] key is pressed, it is stopped.



Purpose	Operation test/Check
Function (Purpose)	Used to check the output operation of various sound signals of FAX. (Used to check the operation of the sound output IC.) An output is sent at the send level set by the soft switch. (Only when FAX is installed)
Section	FAX
Item	Operation

Operation/Procedure

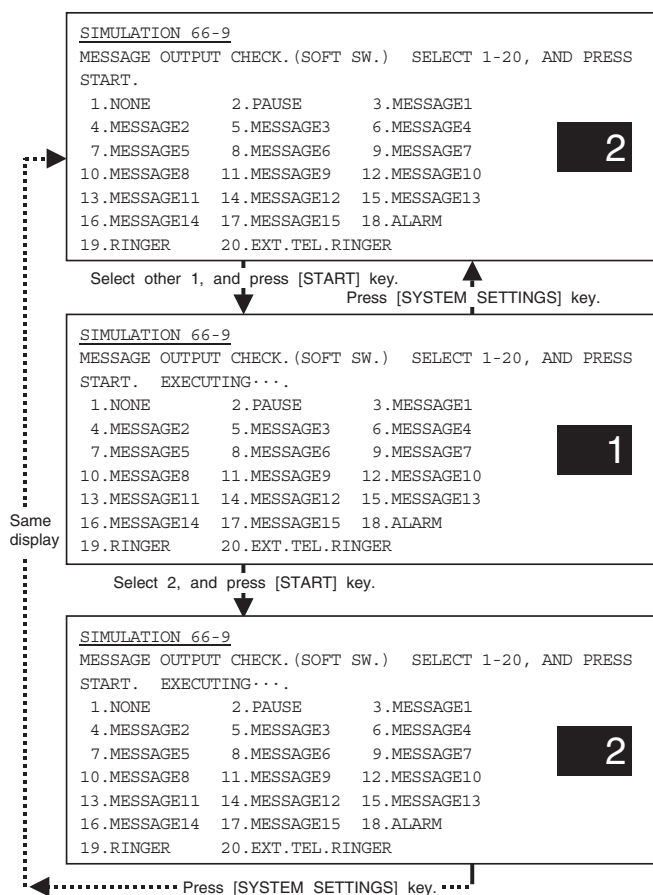
- 1) Enter the number corresponding to the output mode with 10-key.
- 2) Press [START] key.

The output is delivered at the send level set with the soft SW.

1	NONE	Mute	11	MESSAGE 9	MESSAGE 9
2	PAUSE	Pause sound	12	MESSAGE10	MESSAGE 10
3	MESSAGE1	MESSAGE 1	13	MESSAGE11	MESSAGE 11
4	MESSAGE2	MESSAGE 2	14	MESSAGE12	MESSAGE 12
5	MESSAGE3	MESSAGE 3	15	MESSAGE13	MESSAGE 13
6	MESSAGE4	MESSAGE 4	16	MESSAGE14	MESSAGE 14
7	MESSAGE5	MESSAGE 5	17	MESSAGE15	MESSAGE 15
8	MESSAGE6	MESSAGE 6	18	ALARM	Alarm
9	MESSAGE7	MESSAGE 7	19	RINGER	Call ring
10	MESSAGE8	MESSAGE 8	20	EXT.TEL.RINGER	External TEL ring

When the number is entered during execution, the kind of signal can be changed.

When [START] key is pressed, the voice message is sent. When [SYSTEM SETTINGS] key is pressed, it is stopped.



Purpose	User data output/Check (Display/Print)
Function (Purpose)	Used to clear all data of the image memory (memory send/receive). The confidential data are also cleared at the same time. (Only when FAX is installed)
Section	FAX
Item	Data

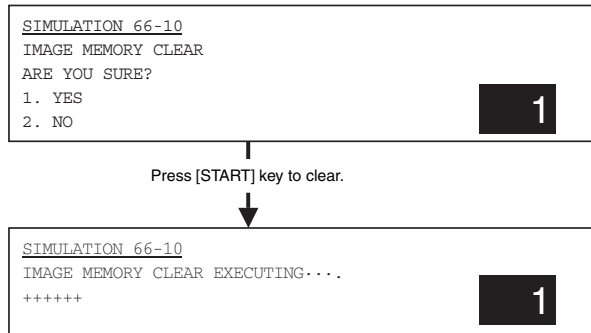
Operation/Procedure

- 1) Select YES/NO of image memory clear with 10-key.

1	YES	Image memory clear is executed.
2	NO	Clear is not executed.

- 2) Press [START] key.

The SRAM image data management table and image data in the Flash ROM area and HD (except for filing images) are cleared.



The processing status of image memory clear is displayed with "+."

Purpose	Operation test/Check
Function (Purpose)	Used to check the output operation of FAX G3 mode 300bps. (Used to check the operation of MODEM.) Send level: Max. (Only when FAX is installed)
Section	FAX
Item	Operation

Operation/Procedure

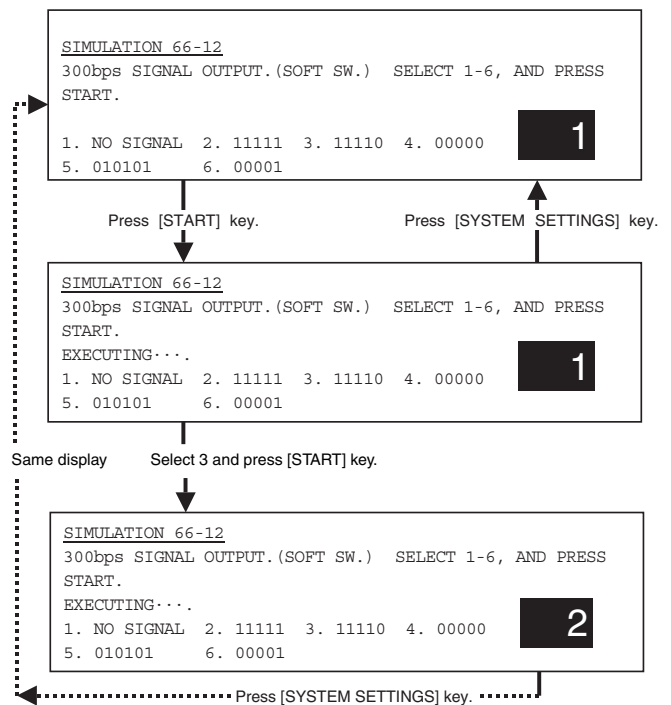
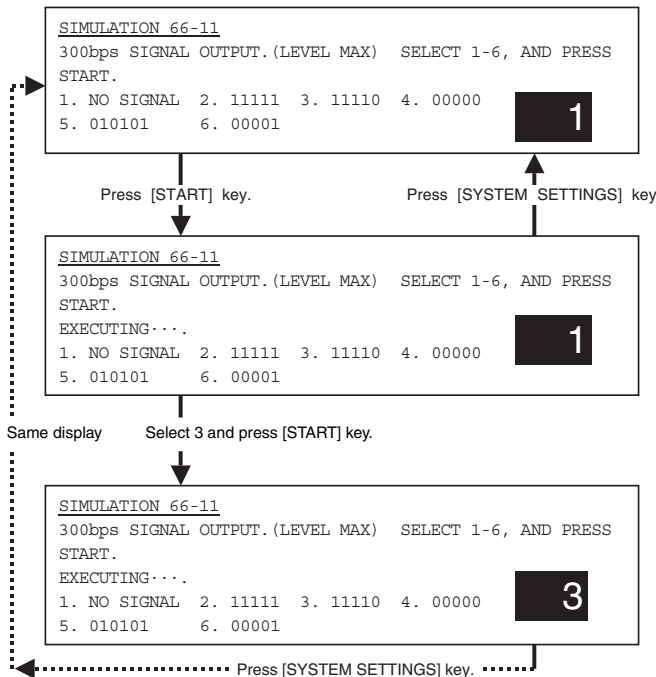
- 1) Select the number corresponding to the output mode with 10-key.
- 2) Press [START] key.

The signal is sent in the max. send level.

1	NO SIGNAL	No signal	4	00000	00000
2	11111	11111	5	010101	010101
3	11110	11110	6	00001	00001

When the number is entered during execution, the kind of signal can be changed.

When [SYSTEM SETTINGS] key is pressed during execution, the operation is stopped.



66-12

Purpose	Operation test/Check
Function (Purpose)	Used to check the output operation of FAX G3 mode 300bps. (Used to check the operation of MODEM.) An output is send at the send level set by the soft switch. (Only when FAX is installed)
Section	FAX
Item	Operation

Operation/Procedure

- 1) Select the number corresponding to the output mode with 10-key.
- 2) Press [START] key.

The signal is sent in the send level set with the soft switch.

1	NO SIGNAL	No signal	4	00000	00000
2	11111	11111	5	010101	010101
3	11110	11110	6	00001	00001

When the number is entered during execution, the kind of signal can be changed.

When [SYSTEM SETTINGS] key is pressed during execution, the operation is stopped.

66-13

Purpose	Setting
Function (Purpose)	Used to enter (set) the number of FAX dial signal output test. (The dial number set by this simulation is outputted when the dial signal output test is made by SIM 66-14 - 16.) (Only when FAX is installed)
Section	FAX
Item	Data

Operation/Procedure

- 1) Enter the dial number with 10-key.
Use 10-key, [*] key, and [#] key to enter the number. The upper limit is 20 digits.
When [CLEAR] key is pressed, the mode returns to the initial state.
- 2) Press [START] key.

SIMULATION 66-13
DIAL TEST NUMBER SETTING. 0-9:[0-9], *:[*], #:[#]
INPUT NUMBER AND PRESS START.
0123456789*#01234567

66-14

Purpose	Setting/Operation test/Check
Function (Purpose)	Used to set the make time in the FAX pulse dial mode (10pps) and to test the dial signal output. (The dial number signal set by SIM 66-13 is outputted.) Used to check troubles in dialing and to check the operation. (Only when FAX is installed)
Section	FAX
Item	Operation

Operation/Procedure

- 1) Enter 0 with 10-key.
- 2) Press [START] key.
The dial signal is outputted.

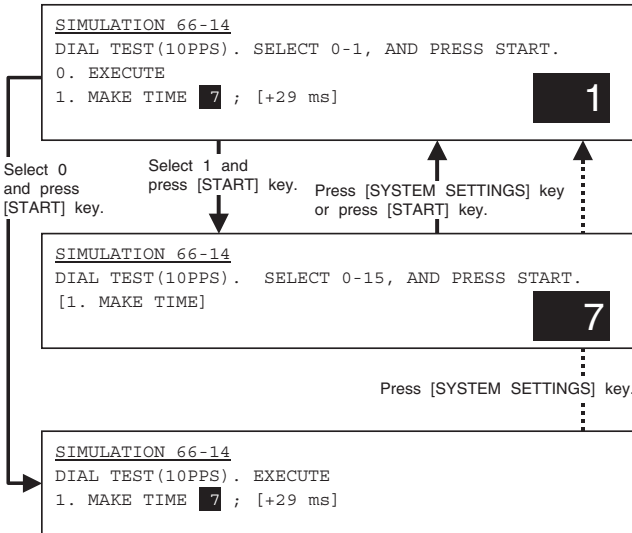
(Dial pulse make time setting)

- 1) Enter 1 with 10-key.
- 2) Press [START] key.
- 3) Enter the set value with 10-key.
- 4) Press [START] key.

0	EXECUTE	Execute
1	MAKE TIME	Dial pulse make time setting (0 - 15)

The dial signal is sent with the set value + 29ms.

When [SYSTEM SETTINGS] key is pressed during execution, the operation is stopped.



66-15

Purpose	Setting/Operation test/Check
Function (Purpose)	Used to set the make time in the FAX pulse dial mode (20pps) and to test the dial signal output. (The dial number signal set by SIM 66-13 is outputted.) Used to check troubles in dialing and to check the operation. (Only when FAX is installed)
Section	FAX
Item	Operation

Operation/Procedure

- 1) Enter 0 with 10-key.
 - 2) Press [START] key.
- The dial signal is outputted.

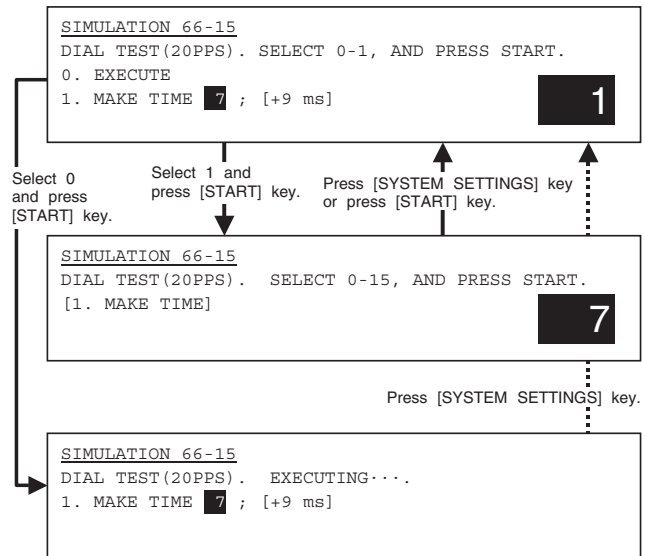
(Dial pulse make time setting)

- 1) Enter 1 with 10-key.
- 2) Press [START] key.
- 3) Enter the set value with 10-key.
- 4) Press [START] key.

0	EXECUTE	Execute
1	MAKE TIME	Dial pulse make time setting (0 - 15)

The dial signal is sent with the set value + 9ms.

When [SYSTEM SETTINGS] key is pressed during execution, the operation is stopped.



66-16

Purpose	Setting/Operation test/Check
Function (Purpose)	Used to check the dial signal (DTMF) output in the FAX tone dial mode. (The dial number signal set by SIM 66-13 is outputted.) The send level can be set to an optional level. Used to check troubles in dialing and to check the operation. (Only when FAX is installed)
Section	FAX
Item	Operation

Operation/Procedure

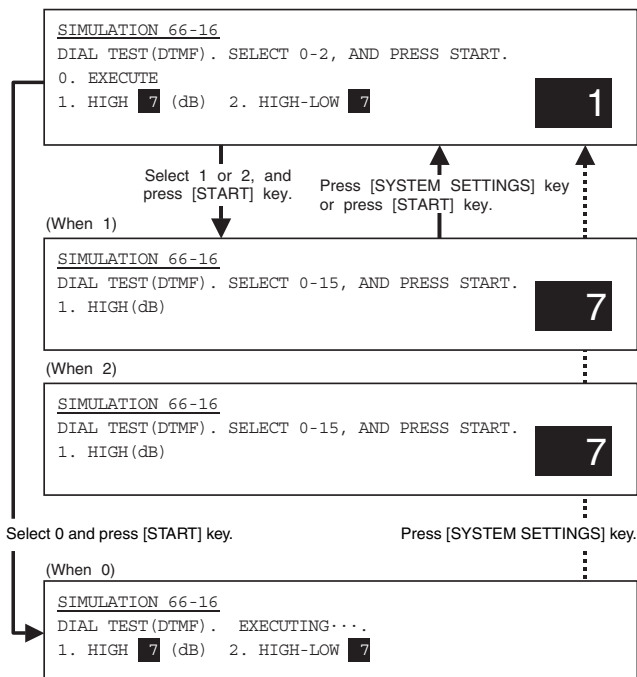
- 1) Enter 0 with 10-key.
 - 2) Press [START] key.
- The dial signal is outputted.

(Dial pulse make time setting)

- 1) Enter 1 or 2 with 10-key.
- 2) Press [START] key.
- 3) Enter the set value with 10-key.
- 4) Press [START] key.

Item			Set range
0	EXECUTE	Execution	
1	HIGH	High group level	0 - 15dB
2	HIGH LOW	High group - Low group	0 - 15

When [SYSTEM SETTINGS] key is pressed during execution, the operation is stopped.



66-17

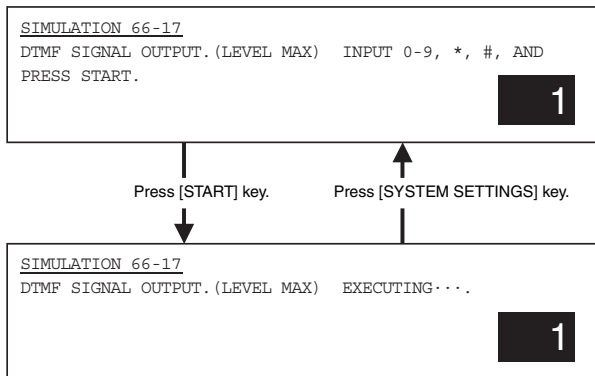
Purpose	Setting
Function (Purpose)	Used to check the dial signal (DTMF) output in the FAX tone dial mode. Send level: Max. Used to check the operation. (Only when FAX is installed)
Section	FAX
Item	Operation

Operation/Procedure

- 1) Enter the DTMF signal (1 - 9, 0, *, #) to be sent with 10-key.
- 2) Press [START] key.

The signal is sent in the max. send level.

When [SYSTEM SETTINGS] key is pressed during execution, the operation is stopped.



66-18

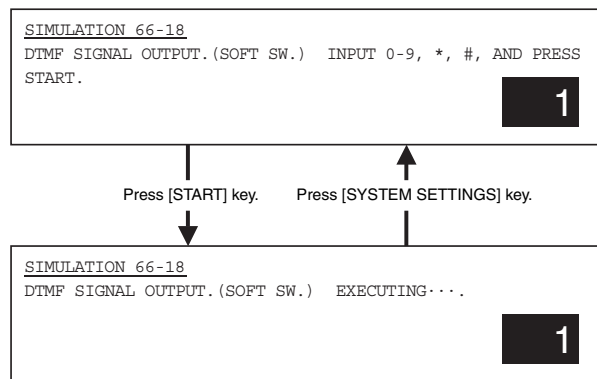
Purpose	Setting
Function (Purpose)	Used to check the dial signal (DTMF) output in the FAX tone dial mode. An output is sent at the send level set by the soft switch. Used to check the operation. (Only when FAX is installed)
Section	FAX
Item	Operation

Operation/Procedure

- 1) Enter the DTMF signal (1 - 9, 0, *, #) to be sent with 10-key.
- 2) Press [START] key.

The signal is sent in the send level set with the soft SW.

When [SYSTEM SETTINGS] key is pressed during execution, the operation is stopped.



66-19

Purpose	Data transfer
Function (Purpose)	Used to back-up the HDD data into the Flash memory (optional FAX expansion memory: AR-MM9). (Only when FAX is installed)
Section	FAX
Item	Data

Operation/Procedure

- 1) Select YES/NO of data transfer (backup).

1	YES	Backup is executed.
2	NO	Backup is not executed.

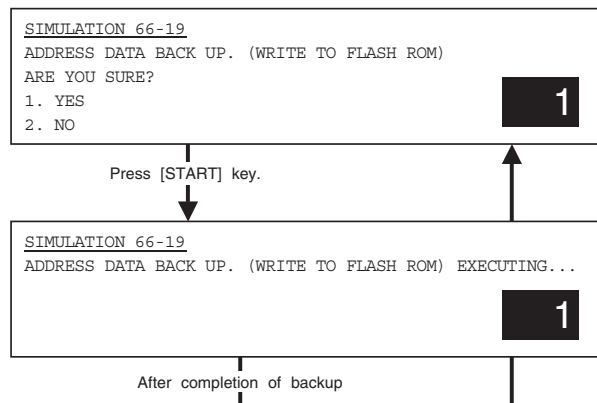
- 2) Press [START] key.

This function is valid only when the AR-MM9 is installed.

Backup contents

- Address book data (FAX, Mail, Address)
 - Item name
- One-touch dial
 - Fine name
- FTP expansion
 - FAX receive select table
- Group expansion
 - Internet FAX receive YES/NO
- Program
 - Polling allow number
- Use index
 - Memory box
- Standard sender
 - Sender name
- Internet FAX sender registration
 - Soft SW
- FAX sender registration

The other contents are not backed up.



66-20

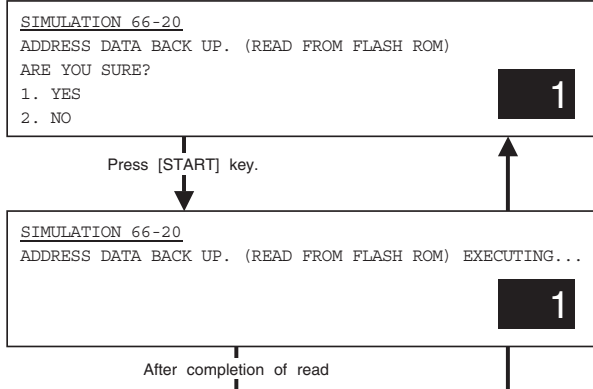
Purpose	Data transfer
Function (Purpose)	Used to read the back-up data by SIM 66-19 to the SRAM/HDD. (Only when FAX is installed)
Section	FAX
Item	Data

Operation/Procedure

- 1) Select YES/NO of data transfer.

1	YES	Backup is executed.
2	NO	Backup is not executed.

- 2) Press [START] key.



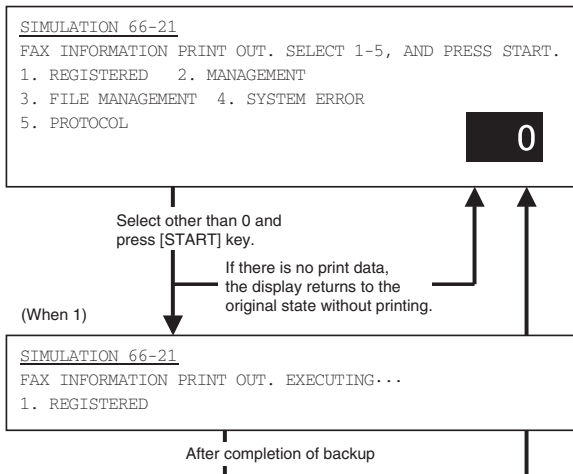
66-21

Purpose	Adjustment/Setup/Operation data output/Check (Display/Print)
Function (Purpose)	Used to print information related to FAX (various registrations, communication management, file management, system error protocol). (Only when FAX is installed)
Section	FAX
Item	Data

Operation/Procedure

- 1) Enter the number corresponding to the information (item) to be printed with 10-key.
- 2) Press [START] key.

1	REGISTERED	Various registration information
2	MANAGEMENT	Communication management information
3	FILE MANAGEMENT	File management information
4	SYSTEM ERROR	System error information
5	PROTOCOL	Protocol information



66-22

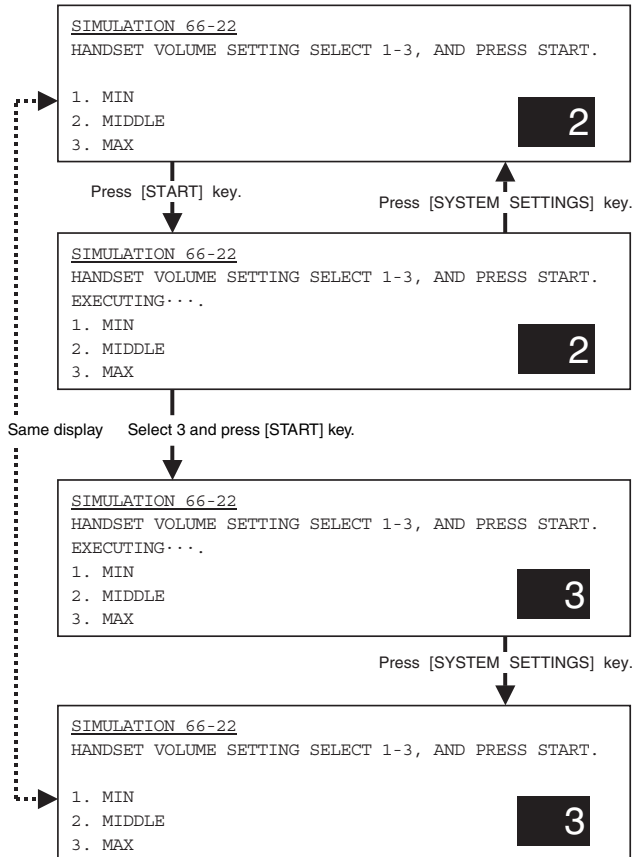
Purpose	Setting
Function (Purpose)	Used to adjust the handset volume. (Only when the FAX is installed.)
Section	FAX
Item	Operation

Operation/Procedure

- 1) Enter the number corresponding to the volume with 10-key.
- 2) Press [START] key.

1	MIN	Small
2	MIDDLE	Medium
3	MAX	Large

Selection of 1, 2, and 3 can be made during execution.

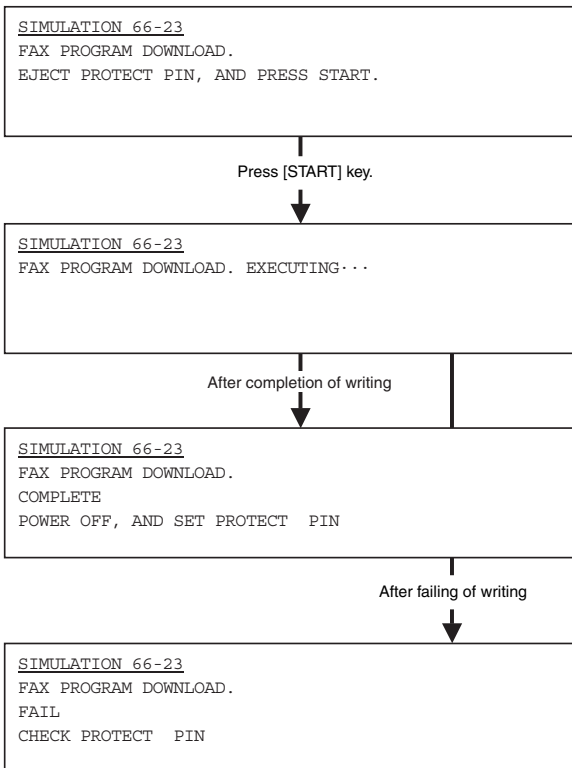


66-23

Purpose	Setting
Function (Purpose)	Used to download the FAX program. (Only when FAX is installed) Not used in the market. (For development)
Section	FAX
Item	

Operation/Procedure

- 1) Turn OFF the power.
 - 2) Remove the protect pin.
 - 3) Turn ON the power.
 - 4) Enter the SIM 66-23 mode.
 - 5) Press [START] key.
- During operation, "EXECUTING" is displayed. When the operation is completed normally, "COMPLETE" is displayed.
- If an error occurs, "FAIL" is displayed.
- 6) Turn OFF the power, and attach the protect pin.



66-24

Purpose	Clear
Function (Purpose)	Used to clear the FAST memory data. (Only when FAX is installed)
Section	FAX
Item	Data

Operation/Procedure

- 1) Select YES/NO of data clear.

1	YES	FAST memory data is cleared.
2	NO	Not cleared.

- 2) Press [START] key.

SIMULATION 66-24
FAST MEMORY DATA CLEAR.
ARE YOU SURE?
1. YES
2. NO

66-25

Purpose	Setting
Function (Purpose)	Used to register the FAX number for Modem dial-in. (Only when FAX is installed) Not used in the market. (For development)
Section	FAX
Item	Data

Operation/Procedure

- 1) Enter the Modem dial-in FAX number (1 - 9, 0, *, #) with 10-key.
- 2) Press [START] key.

SIMULATION 66-25
M-D-IN FAX NUMBER SETTING. 0-9:[0-9],*:[*],#:[#]
INPUT NUMBER AND PRESS START.
0123456789*#01234567

66-26

Purpose	Setting
Function (Purpose)	Used to register external telephone numbers for Modem dial-in. (Only when FAX is installed) Not used in the market. (For development)
Section	FAX
Item	Data

Operation/Procedure

- 1) Enter the Modem dial-in FAX number (1 - 9, 0, *, #) with 10-key.
- 2) Press [START] key.

SIMULATION 66-26
M-D-IN EXTEL NUMBER SETTING. 0-9:[0-9],*:[*],#:[#]
INPUT NUMBER AND PRESS START.
0123456789*#01234567

66-27

Purpose	Setting
Function (Purpose)	Used to register the transfer number for voice warp. (Only when FAX is installed) Not used in the market. (For development)
Section	FAX
Item	Data

Operation/Procedure

- 1) Enter the voice warp transfer number (1 - 9, 0, *, #) with 10-key.
- 2) Press [START] key.

SIMULATION 66-27
V-WP TRANSMIT NUMBER SETTING. 0-9:[0-9],*:[*],#:[#]
INPUT NUMBER AND PRESS START.
0123456789*#01234567

66-29

Purpose	Clear
Function (Purpose)	Used to clear data related to an address book (one-touch registration, program registration/expansion, relay memory box registration, each table content).
Section	FAX, Network scanner
Item	Data

Operation/Procedure

- 1) Select YES/NO of data clear.

1	YES	Address book data is cleared.
2	NO	Not cleared.

- 2) Press [START] key.

SIMULATION 66-29
ADDRESS DATA CLEAR.
ARE YOU SURE?
1. YES
2. NO

1

66-30

Purpose	Operation test/Check
Function (Purpose)	Used to check the change in the TEL/LIU status. (Only when FAX is installed)
Section	FAX
Item	Operation

Operation/Procedure

The TEL/LIU state is displayed.

When the state is changed, it is highlighted.

HS1	Polarity reverse signal
HS2	Polarity reverse signal
RHS	Handset hook SW
EXHS	External telephone hook SW

SIMULATION 66-30
TEL/LIU SENSOR CHECK.
HS1 HS2 **RHS** EXHS

1

66-31

Purpose	Operation test/Check
Function (Purpose)	Used to check the relay operation. (Only when FAX is installed)
Section	FAX
Item	Operation

Operation/Procedure

- 1) Enter the number corresponding to the check item with 10-key.
- 2) Press [START] key.

SIMULATION 66-31
TEL/LIU SETTING.
INPUT 0-1, AND PRESS START.
1. **MPXA** 2. CION 3. MR 4. EC
5. **S.** 6. **CML** 7. DP 8.

1 2 3 4 5 6 7 8
10001100

66-32

Purpose	Operation test/Check
Function (Purpose)	Used to check the receive data (fixed data) from the line. (Only when FAX is installed)
Section	FAX
Item	Operation

Operation/Procedure

When check is completed normally, "OK" is displayed. In case of an error, "NG" is displayed.

(Display message)

CHECKING	Checking
OK	Checking completed (OK)
NG	Checking completed (NG)

SIMULATION 66-32
RECEIVED DATA CHECK.
CHECKING... (OK or NG)

66-33

Purpose	Operation test/Check
Function (Purpose)	Used to check the signal (BUSY TONE/CNG/ CED/FNET/DTMF) detection. (Only when FAX is installed)
Section	FAX
Item	Operation

Operation/Procedure

The detected signal is highlighted.

SIMULATION 66-33
SIGNAL DETECT CHECK.
BUSY TONE **CNG** CED FNET DTMF

66-34

Purpose	Operation test/Check
Function (Purpose)	Used to measure the communication time of test image data. (Only when FAX is installed)
Section	FAX
Item	Operation

Operation/Procedure

Communication test is performed to measure the time (ms).

Send is made under the following conditions.

Communication means	Memory send
Image quality	Normal text
Density	Light
ECM	ON
Sender record	OFF

SIMULATION 66-34
COMMUNICATION TIME DISPLAY.

* * * * * ms

66-35

Purpose	Setting
Function (Purpose)	Modem program rewriting. (Only when FAX is installed) Not used in the market. (For development)
Section	FAX
Item	Data

Operation/Procedure

- 1) Select YES/NO of Modem program reload.

1	YES	Modem block reload is cleared.
2	NO	Not reloaded.

- 2) Press [START] key.

When reload is completed normally, "OK" is displayed. In case of an error, "CHECK SUM" is displayed.

The result of Modem reload is displayed.

COMPLETE	Reload completed
81	Check sum error
82	Write error
83	Delete error
84	Verify error
NG	Due to loader NG

SIMULATION 66-35
 MODEM PROGRAM RELOAD.
 ARE YOU SURE?
 1. YES
 2. NO

Press [START] key.

SIMULATION 66-35
 MODEM PROGRAM RELOAD. EXECITOMG...
 LOADER... xxxxxx
 MODEM... xxxxxx

After completion of reloading

SIMULATION 66-35
 MODEM PROGRAM RELOAD.
 LOADER...OK
 MODEM...COMPLETE

66-36

Purpose	Operation test/Check
Function (Purpose)	Used to check interface between MFPC controller and MDMC. (Check of the data line or the command line) (Only when FAX is installed)
Section	FAX
Item	Operation

Operation/Procedure

- 1) Enter the number corresponding to the check mode with 10-key.

1	MFPC ← MDMC (DATA once)	Date line once only
2	MFPC → MDMC (DATA once)	Date line once only
3	MFPC ← MDMC (DATA repeat)	Data line repeat
4	MFPC → MDMC (DATA repeat)	Data line repeat
5	MFPC ← MDMC (CMD once)	Command line once only
6	MFPC → MDMC (CMD once)	Command line once only
7	MFPC ← MDMC (CMD repeat)	Command line repeat
8	MFPC → MDMC (CMD repeat)	Command line repeat

- 2) Press [START] key.

When check is completed normally, "OK" is displayed. Incase of an error, "NG" is displayed.

When check is "repeat," the operation is continued until the result is NG or [SYSTEM SETTINGS] key is pressed.

SIMULATION 66-36
 MFPC-MDMC I/F CHECK. INPUT 1-8, AND PRESS START.

1. MFPC-<MDMC (DATA once)
2. MFPC->MDMC (DATA once)
3. MFPC-<MDMC (DATA repeat)
4. MFPC->MDMC (DATA repeat)
5. MFPC-<MDMC (CMD once)
6. MFPC->MDMC (CMD once)
7. MFPC-<MDMC (CMD repeat)
8. MFPC->MDMC (CMD repeat)

Press [START] key.

SIMULATION 66-36
 MFPC-MDMC I/F CHECK. INPUT 1-8, AND PRESS START.
 EXECUTING...

When check is "once" or "repeat" and the result is "NG":

When check is "repeat" and [SYSTEM SETTINGS] key ON:

SIMULATION 66-36
 MFPC-MDMC I/F CHECK. INPUT 1-8, AND PRESS START.
 EXECUTING... (OK or NG)

66-39

Purpose	Setting
Function (Purpose)	Used to set the destination specifications. (Only when FAX is installed)
Section	FAX
Item	Specifications
	Operation

Operation/Procedure

- 1) Enter the number corresponding to the destination.
- 2) Press [START] key.

SIMULATION 66-39
 FAX DESTINATION SETUP.
 SELECT 1-6, AND PRESS START

0. NO DESTINATION
1. JAPAN
2. U.S.A./CANADA
3. EUROPE
4. AUSTRALIA
5. CHINA
6. ASIA&OTHERS

Press [START] key.

66-42

Purpose	Setting
Function (Purpose)	PIC program rewriting (Only when FAX is installed)
Section	FAX
Item	Operation

Operation/Procedure

- 1) The confirmation window is displayed. Select whether rewriting of the program into PIC installed in the FAX VOX is performed or not.

NOTE: Release the write protect notch.

FAX program writing enabled (Jumpers and DIP SW depending on the model.)

1	YES	Execution
2	NO	Cancel

- 2) Press [START] key.

When reload is completed normally, "OK" is displayed. In case of an error, "NG" is displayed.

NG cause:

- Write protect is set.
- PIC is not installed.
- Access error to PIC

SIMULATION 66-42
 PIC PROGRAM RELOAD.
 ARE YOU SURE ?
 1. YES
 2. NO

Press [START] key.

SIMULATION 66-42
 PIC PROGRAM RELOAD EXECUTING ...

Press [START] key.

Press [SYSTEM SETTINGS] key.

SIMULATION 66-42
 PIC PROGRAM RELOAD
 OK

Purpose	Setting
Function (Purpose)	PIC adjustment value writing (Only when FAX is installed)
Section	FAX
Item	Operation

Operation/Procedure

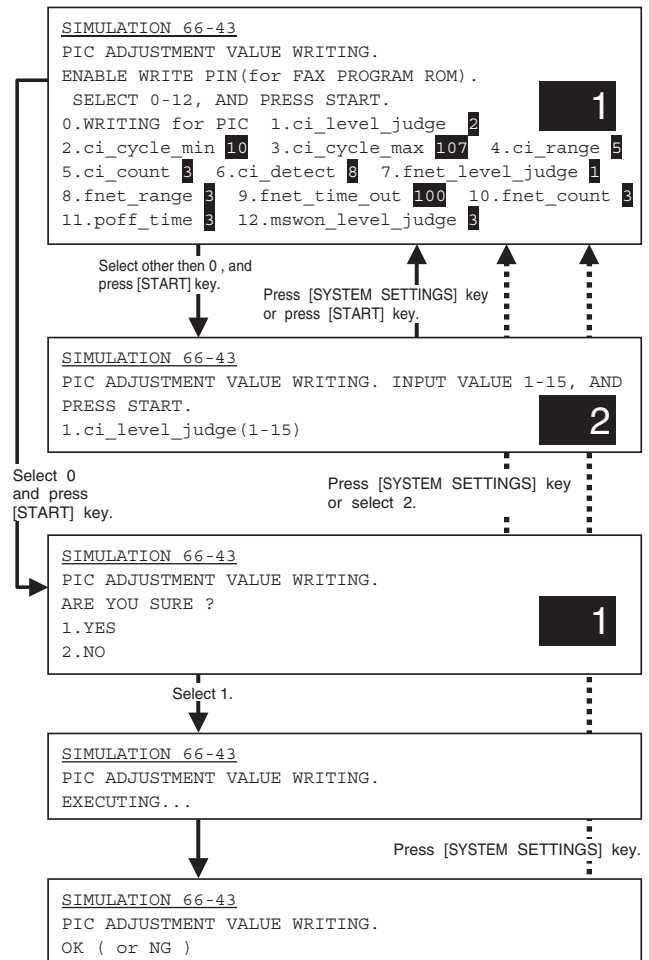
To execute this simulation, FAX program writing must be allowed. (Jumpers and DIP SW depending on the model.) The adjustment values in PIC are changed or rewritten.

- 1) Enter the number corresponding to the set item with 10-key.
- 2) Press [START] key.
- 3) Enter the set value.
- 4) Press [P] key.
- 5) Select 0.
- 6) The confirmation window is displayed. Select whether the PIC adjustment values are written or not.

YES	The adjustment values are collectively written into PIC installed in the FAX BOX.
NO	No writing

When writing of the PIC adjustment values is normally completed, "OK" is displayed. In case of an error, "NG" is displayed.

Item	Content	Set range	Default
0	WRITING for PIC	Writing to PIC	—
1	ci_level_judge	Number of sensing until the CI signal level is settled.	1-15
2	ci_cycle_min	CI signal cycle min. Time	0-254
3	ci_cycle_max	CI signal cycle max. time	0-254
4	ci_range	CI signal allowable range	0-127
5	ci_count	CI signal settlement number of times	1-15
6	ci_detect	CID IN- signal settlement number of times	1-15
7	fnet_level_judge	Sense number of times until settlement of FNET signal level	1-15
8	fnet_range	FNET signal allowable range	0-74
9	fnet_time_out	FNET time out time	76-255
10	fnet_count	FNET signal settlement number of times	1-15
11	poff_time	PON signal OFF time	0-15
12	mswon_level_judge	Sense number of times until settlement of MSW_ON signal level	2-15



67

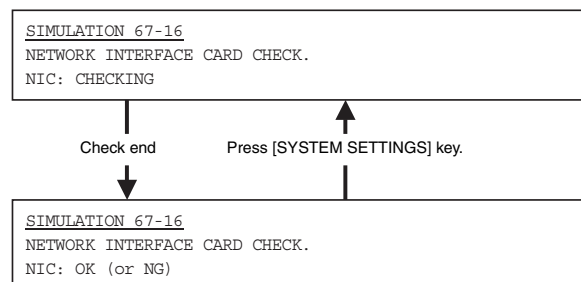
Purpose	Operation test/Check
Function (Purpose)	Used to check the operation of the network card.
Section	MFP controller
Item	Operation Interface/Communication

Operation/Procedure

During check, "CHECKING" is displayed. When check is completed normally, "OK" is displayed. In case of an error, "NG" is displayed.

(Display message)

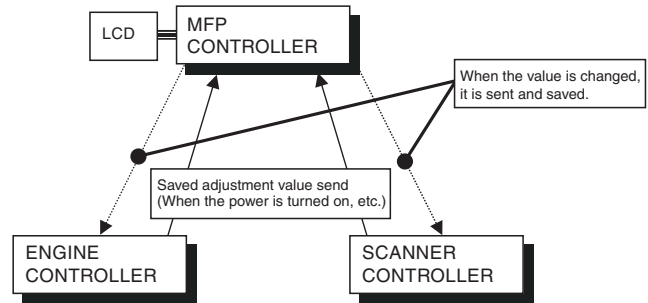
CHECKING	Checking
OK	Check end (Normal)
NG	Check end (Error)



3. Other related items

(1) Simulation adjustment value/ Set value data

Each controller is provided with an EEPROM. The adjustment/set values are collected to the MFP controller. If they are changed, they are sent back and saved.



● Data saved by the PCU PWB

Counters	Adjustment value	Other
Drum rotation time counter (Accumulated time)	Developing bias voltage value	Serial number
Developer unit rotation time counter	Cleaning mode developing bias voltage value	Trouble history
Toner supply time (Block IC CHIP)	Main high voltage adjustment	Tray 1 size
Drum rotating time (Block IC CHIP)	Transfer charger voltage value	LCC size
Total counter	Transfer belt cleaning voltage value	Manual destination information
Maintenance counter	Toner concentration reference value	
Developing counter	Density correction start set time (Developer unit)	Tray 2 destination information
Drum counter	Density correction rotation time (Developer tank)	
Toner cartridge counter	Density correction amount (Developer tank)	Tray 1 paper remaining quantity data
Valid paper counter	Correction execution direction, upper/lower limit (Developer tank)	Tray 2 paper remaining quantity data
Tray 1 paper feed counter	Toner concentration temperature correction (low temperature side) correction amount	Tray 3 paper remaining quantity data
Tray 2 paper feed counter	Toner concentration temperature correction (low temperature side) set temperature	Tray 4 paper remaining quantity data
Tray 3 paper feed counter	Toner concentration temperature correction (low temperature side) release temperature	Final toner concentration sensor output value
Tray 4 paper feed counter	Toner concentration temperature correction (high temperature) correction amount	Toner cartridge IC CHIP destination
Manual paper feed counter	Toner concentration temperature correction (high temperature side) judgment temperature	Counter mode setting
ADU paper feed counter	Toner concentration temperature correction (high temperature side) judgment voltage	White paper exit count setting
Staple counter	Toner concentration temperature correction (high temperature side) correction value	Trouble memory mode setting
Punch counter	Toner concentration temperature correction (low temperature side) release time	Fusing operation mode (Prevention against curl)
Main unit right-side paper exit counter	Toner concentration temperature correction (high temperature side) toner concentration delay time	CE mark conforming operation mode
	Multi-purpose width adjustment value	Maintenance cycle
	Manual width adjustment value	Print stop setting when developer life over
Saddle staple counter	Heater lamp temperature (Center, normal control)	Saddle alignment operation priority mode
	Lead edge adjustment	PCU SOFT SW
	Led edge void set value	
	Rear edge void set value	
	Side edge setting	
	Print off-center adjustment value	
	Resist amount adjustment value	
	Laser power adjustment value	
	PPD1 sensor adjustment	
	Process correction inhibit allow set value	
	Developing bias rising correction wait time	
	Developing bias rising correction adjustment value	
	Built-in finisher jogger position adjustment	
	Saddle adjustment value	

● Data saved by the scanner control PWB

Counters	Adjustment value	Other
Scan counter	Document lead edge adjustment value	Exposure mode set value
SPF paper pass counter	Document off-center adjustment value	Scanner serial number
SPF stamp counter	Document image loss amount adjustment value	Document image loss amount adjustment value
	Magnification ratio adjustment value	Scanner soft SW
	SPF resist amount adjustment value	
	Exposure motor speed adjustment value	
	Platen document detection adjustment value	
	SPF size width detection adjustment value	
	Touch panel adjustment value	
	Exposure level adjustment value	
	Y' change value	
	OC/SPF exposure correction value	
	Shading adjustment value (CCD/CIS)	
	CCD shading start position adjustment value	

● Data saved by the MFP control PWB

Counters	Adjustment value	Other
Copy counter	FAX SOFT SW., etc.	Trouble history
Printer counter		JAM history
FAX receive counter		Destination setting
FAX send counter		Language setting
All valid paper counter		Toner save mode setting
Trouble counter		13" setting
JAM counter		Auditor setting
		Counter mode setting
		Trouble memory mode setting
		Center binding mode AMS setting
		PC/MODEM communication trouble detection YES/NO setting
		Tag number set value
		Printers set values
		Network set value
		MFP soft SW

[10] MACHINE OPERATION

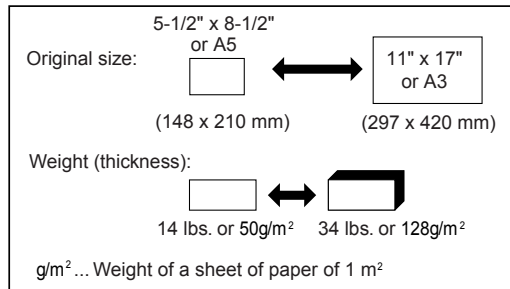
1. Acceptable originals

A stack of up to 50 original sheets (30 original sheets*1 for 8-1/2" x 14" (B4) or larger) of the same size paper can be set in the document feeder tray provided the stack height is within the limit shown below.

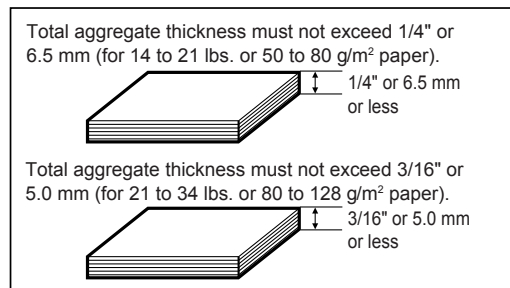
A stack of up to 30 mixed size originals can be set if the width of the originals is the same and the stack height is within the limit shown below. In this case, however, stapling and duplex will not function and some special functions may not give the expected result.

*1: For paper heavier than 28 lbs. (105g/m²), only a stack of up to 15 sheets can be set. Setting 16 or more sheets may cause incorrect scanning of original and scanned image may become expanded compared with original itself.

A. Size and weight of acceptable originals



B. Total number of originals that can be set in the document feeder tray

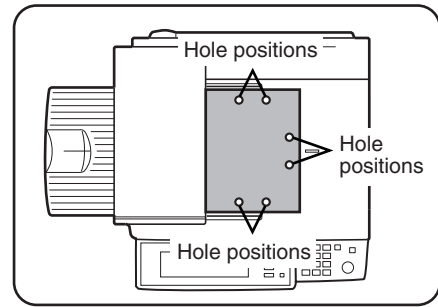


<Notes on use of the automatic document feeder>

- Use originals within the specified size and weight ranges. Use of originals out of the specified range may cause an original misfeed.
- Before loading originals into the document feeder tray, be sure to remove any staples or paper clips.
- If originals have damp spots from correction fluid, ink or glue from pasteups, be sure they are dried before they are fed. If not, the interior of the document feeder or the document glass may be soiled.
- Do not use the following originals. These originals may cause incorrect original size detection, original misfeeds, and smudges on copies.

Transparency film, tracing paper, carbon paper, thermal paper or originals printed with thermal transfer ink ribbon should not be fed through the document feeder. Originals to be fed through the feeder should not be damaged, crumpled or folded or have loosely pasted paper on them or cutouts in them. Originals with multiple punched holes other than two-hole or three-hole punched paper may not feed correctly.

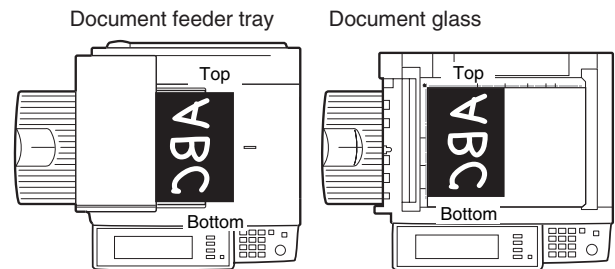
- When using originals with two or three holes, place them so that the punched edge is at a position other than the feed slot.



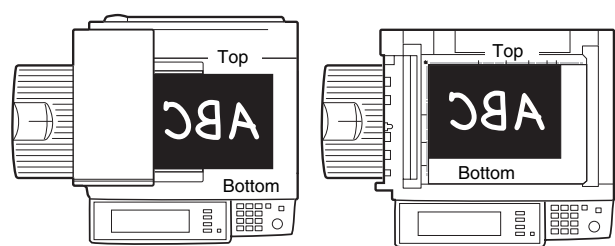
2. Standard original placement orientations

Place originals in the document feeder tray or on the document glass so that the top and bottom of the original is positioned as shown in the illustration. If not, staples will be incorrectly positioned and some special features may not give the expected result.

[Example 1]



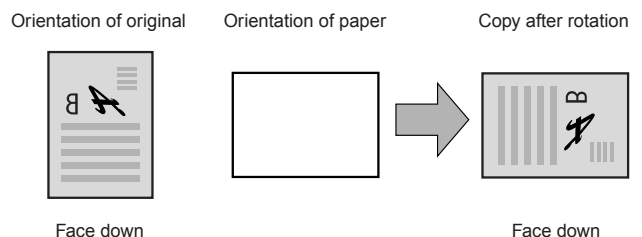
[Example 2]



3. Automatic copy image rotation - rotation copying

If the orientation of the originals and copy paper are different, the original image will be automatically rotated 90° and copied. (When an image is rotated, a message will be displayed.) If a function is selected that is not suitable for rotation, such as enlarging the copy to greater than 8-1/2" x 11" (A4) size or staple sorting with the saddle stitch finisher, rotation will not be possible.

[Example]



4. Specifications of paper trays

The specifications for types and sizes of paper that can be used in each tray are shown below.

Tray	Tray No. (tray name)	Applicable paper types		Applicable paper sizes	Paper weight
Paper tray 1	Tray 1	Plain paper (Refer to the next page for applicable plain papers.)		• 8-1/2" x 11", A4, B5	16 to 28 lbs. or 60 to 105g/m ²
Multi purpose drawer/ bypass tray	Tray 2/ bypass tray	Plain paper (Refer to the next page for applicable plain papers.)		• If "AUTO-INCH" is selected in setting the paper type and paper size, the following paper sizes can be used with the automatic detection function: 11" x 17", 8-1/2" x 14", 8-1/2" x 11", 8-1/2" x 11"R, 7-1/4" x 10-1/2"R, 5-1/2" x 8-1/2"R • If "AUTO-AB" is selected in setting the paper type and paper size, the following paper sizes can be used with the automatic detection function: A3, B4, A4, A4R, B5, B5R, A5R, 8-1/2" x 13" • Non-standard sizes	16 to 34 lbs. or 60 to 128g/m ²
		Special paper (Refer to the next page for applicable special papers.)	• Thick paper • Labels, transparency film	• If "AUTO-INCH" is selected in setting the paper type and paper size, the following paper sizes can be used with the automatic detection function: 8-1/2" x 11", 8-1/2" x 11"R • If "AUTO-AB" is selected in setting the paper type and paper size, the following paper sizes can be used with the automatic detection function: A4, A4R, B5, B5R • Non-standard sizes	See the remarks for special paper on the next page.
			Postcard	• Japanese official postcard	
			Envelopes can only be fed from the multi-purpose drawer. Applicable stock weight for envelopes is 20 to 23 lbs. or 75 to 90g/m ²	• Applicable standard size envelopes: COM-10, Monarch, DL, C5, ISO B5, CHOKEI 3 • Non-standard size	
Stand/3 x 500 sheet paper drawer	Upper	Tray 2	Same as multi purpose drawer		
	Middle	Tray 3	Plain paper (Refer to the “A. Applicable plain paper”.)	• If "AUTO-INCH" is selected in setting the paper type and paper size, the following paper sizes can be used with the automatic detection function: 11" x 17", 8-1/2" x 14", 8-1/2" x 11", 8-1/2" x 11"R, 7-1/4" x 10-1/2" • If "AUTO-AB" is selected in setting the paper type and paper size, the following paper sizes can be used with the automatic detection function: A3, B4, A4, A4R, B5, B5R, 8-1/2" x 13"	16 to 28 lbs. or 60 to 105g/m ²
	Lower	Tray 4			
Stand/MPD & 2000 sheet paper drawer	Upper	Tray 2	Same as multi purpose drawer		
	Lower	Tray 3	Plain paper (Refer to the next page for applicable plain papers.)	• 8-1/2" x 11", A4	16 to 28 lbs. or 60 to 105g/m ²

A. Applicable plain paper

For satisfactory results, plain paper must conform to the following requirements.

	Paper in AB system	Paper in inch system
	A5 to A3	5-1/2" x 8-1/2" to 11" x 17"
Plain paper	16 to 28 lbs. or 60 to 105g/m²	
Recycled, colored, pre-punched, pre-printed and letterhead papers must conform to the same conditions as above.		

B. Applicable special paper

For satisfactory results, special paper must conform to the following requirements.

	Type	Remarks
Special paper	Thick paper	- For 5-1/2" x 8-1/2" to 8-1/2" x 11" or A5 to A4 sizes, thick paper ranging from 16 to 34 lbs. or 60 to 128g/m² can be used. - For sizes larger than 8-1/2" x 11" or A4, thick paper ranging from 16 to 28 lbs. or 60 to 105g/m² can be used. - Other thick papers Index stock (65 lbs. or 176g/m²) can be used. Cover stock (110 lbs. or 200 to 205g/m²) can be used but only for 8-1/2" x 11", A4 paper in the portrait orientation. - For 5-1/2" x 8-1/2" or A5 paper, the orientation must be landscape.
	Transparency film, labels, and tracing paper	Use SHARP recommended paper. Do not use labels other than SHARP recommended labels. Doing so may leave adhesive residue in the machine, causing paper misfeeds, smudges on prints or other machine trouble.
	Postcards	Japanese official postcards can be used.
	Envelopes	- Applicable standard envelopes: COM-10, Monarch, DL, C5, ISO B5, CHOKEI 3 - Envelopes can only be fed from the tray 2. - Applicable paper stock weight for envelopes is 20 to 23 lbs. or 75 to 90g/m².

5. Printing onto envelopes

- Do not use envelopes that have metal clasps, plastic snaps, string closures, windows, linings, self-adhesive patches or synthetic materials. Attempting to print on these may cause misfeeds, inadequate toner adherence or other trouble.
- Creases or smudging may occur. This is especially true of embossed surfaces and other irregular surfaces.
- Under high humidity and temperature conditions the glue flaps on some envelopes may become sticky and be sealed closed when printed.
- Use only envelopes which are flat and crisply folded. Curled or poorly formed envelopes may be poorly printed or may cause misfeeds.

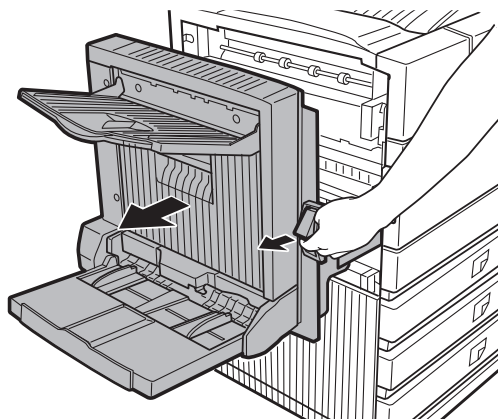
A. Fusing unit pressure adjusting levers

When feeding envelopes from the multi purpose drawer, damage to the envelopes or smudges on prints may occur even if envelopes within specification are used. In this case, the problem may be reduced by shifting the fusing unit pressure adjusting levers from the normal position to the lower pressure position. Follow the procedure below.

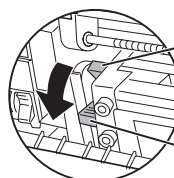
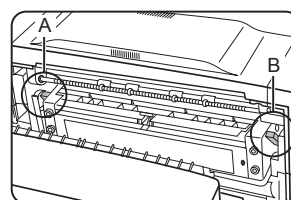
NOTE: Be sure to return the lever to the normal position when finished feeding envelopes. If not, inadequate toner adherence, paper misfeeds or other trouble may occur.

- 1) Unlatch the duplex module and slide it to the left.

Unlatch the module and gently move the module away from the machine. If the machine is not equipped with a duplex module, open the side cover similarly.

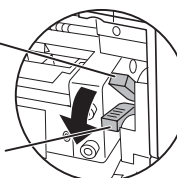


- 2) Lower the two fusing unit pressure adjusting levers marked A and B in the illustration.



Normal position

Lower pressure position

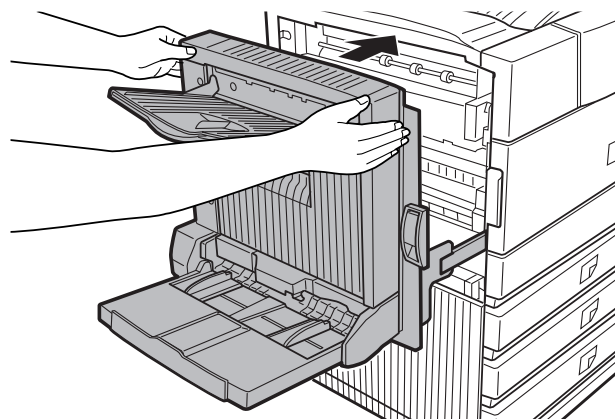


A: Rear side of fusing unit

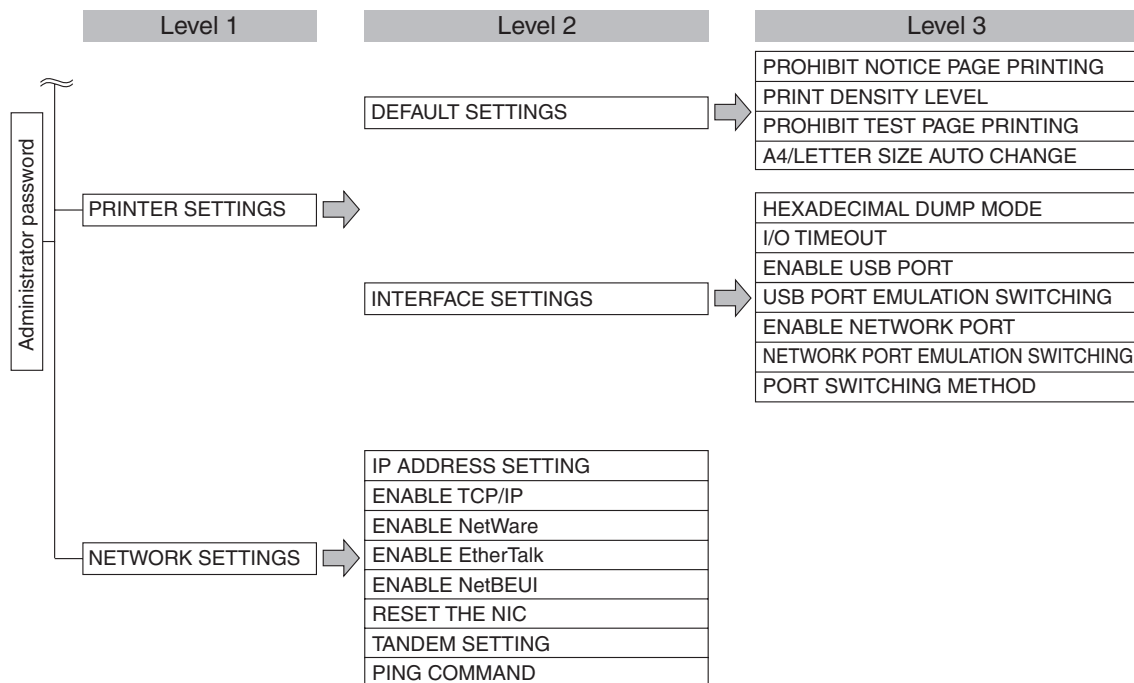
B: Front side of fusing unit

- 3) Gently close the duplex module.

If the machine is not equipped with a duplex module, close the side cover.



A. System settings



(1) Printer settings

a. Default settings

These programs are used to adjust the settings of various printer functions.

Prohibit notice page printing

This program is used to disable notice page printing.
Normally this program is set to not print a notice page.

Print density level

This program is used to adjust the lightness or darkness of prints. Five levels are provided for density adjustment. These are represented by numbers displayed on the touch panel. Among the displayed numbers, a smaller value indicates lighter density and a larger value indicates a darker density.

Prohibit test page printing

This program is used to disable test page printing.
When the program is turned on, the PRINTER TEST PAGE in the custom settings cannot be printed.

A4/letter size auto change

If this program is set, and printing onto 8-1/2" x 11" size paper is selected but not available, the printer will automatically substitute A4 size paper in place of 8-1/2" x 11" paper if A4 paper is available.

* 8-1/2" x 11" paper cannot be automatically selected in place of A4.

NOTE: When 8-1/2" x 11" size is specified for a document attached to an E-mail that has been transmitted from a foreign country and A4 size paper is not installed in the printer, printing cannot be done without operator intervention. If this program is set, printing will be executed without intervention if a paper tray is loaded with A4 paper.

(2) Interface settings

These programs are used to control data transmitted to the parallel port, USB port or network port of this printer.

Hexadecimal dump mode

This program is used to output the print data from a computer in the hexadecimal dump format with corresponding characters (ASCII). This program is used to check proper transmission of print data from the computer to the printer.

Output example of hexadecimal dump mode

[illegible]

I/O timeout

This program is used to set the length of time to wait for an I/O to complete a job on the parallel port or the network port. If the data stream to the port does not transmit data for a length of time exceeding the timeout, the job will cancel and the next job will start processing.

The I/O timeout setting is used to set the amount of time after which an I/O timeout will occur when waiting for print data.

Default setting: 20 seconds

NOTE: The allowable range of the time is 1 to 999 seconds.

Enable USB port

This program is used to enable or disable printing from the USB port.

Default setting: Enable

USB port emulation switching

If the machine is connected using the USB port, select the emulated printer language.

The setting items are the same as those of "Parallel port emulation switching".

NOTE: It is recommended to set "AUTO" (default setting) unless an error due to this setting occurs frequently.

Enable network port

This program is used to enable or disable printing from the network port.

Default setting: Enable

Network port emulation switching

This program is used to specify a printer language to emulate when the printer is connected to a computer through the network port.

The setting items are the same as those of "Parallel port emulation switching".

NOTE: It is recommended to set "AUTO" (default setting) unless an error due to this setting occurs frequently.

Port switching method

The machine can use the three ports shown below for printing. This program is used to select when switching between ports will take place. "SWITCH AT END OF JOB" or "SWITCH AFTER I/O TIMEOUT" can be selected. When "SWITCH AT END OF JOB" is selected, the port will be automatically selected after each print job is completed. When "SWITCH AFTER I/O TIMEOUT" is selected, the port will be automatically selected if the time set in the I/O Timeout program elapses.

- USB port
- Network port

(2) Network settings

These programs are set when this product is used as a network printer.

After you complete the setting for one program, you must exit the key operator programs, turn off the main switch, wait briefly, and then turn on the main switch again before any other programs can be set. The program that was set will be effective after the power is turned on.

NOTE: For setting and modification of "Network settings", be sure to consult with the network administrator.

IP address setting

When using this product in a network that uses the TCP/IP protocol, use this program to set the IP address (IP address, IP subnet mask, and IP gateway) of this product. The program is set to ENABLE DHCP by factory default setting, which obtains the IP address setting automatically. When using this product on a TCP/IP network, be sure to turn on the "Enable TCP/IP" program below.

If DHCP is used, the IP address assigned to the machine may be changed automatically on occasion.
If this happens, printing will not be possible.

Enable TCP/IP

When using this product in a network that uses the TCP/IP protocol, set this program. Also set the IP address using the program "IP address setting" above.

Default setting: Enable

Enable NetWare

When using this product in a network that uses the NetWare protocol, set this program.

Default setting: Enable

Enable EtherTalk

When using this product in a network that uses the EtherTalk protocol, set this program.

Default setting: Enable

Enable NetBEUI

When using this product in a network that uses the NetBEUI protocol, set this program.

Default setting: Enable

Reset the NIC

This program is used to reset all setting items of NIC (Network Interface Card) of this product to the factory default settings.

NOTE: If any of the [NETWORK SETTINGS] were changed prior to execution of this program, you must turn off the power switch after exiting the key operator program, wait briefly, and then turn on the power switch to make the factory default settings take effect.

Tandem setting

This setting is used to configure the IP address and port number of the client printer when you wish to have two machines (which are used as TCP/IP network printers) print in tandem.

Tandem printing is not possible if the other machine is a different model than your machine.

The factory default setting for the port number is [50001]. Unless you experience difficulty with this setting, it does not need to be changed.

The tandem function can also be prohibited, or the reception of tandem data from the other machine can be prohibited. (Normally this is not necessary.)

To prohibit the tandem function, select "DISABLING OF MASTER MACHINE MODE".

To prohibit reception of tandem data from the other machine, select "DISABLING OF SLAVE MACHINE MODE".

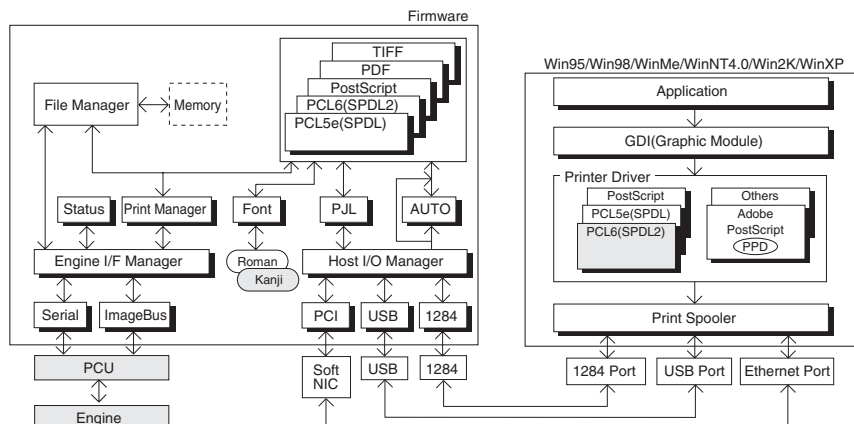
NOTE: To use the tandem function when auditing mode is enabled, the same account number must be entered on both machines. If the same account number is not entered, only the server machine may print or the printed pages may not be added to the correct account.

PING command

This program is used to check if the machine and a computer connected to the network can communicate.

Enter the IP address of the computer that you wish to check and touch the [START] key. A message will appear indicating whether or not there was a response from the computer.

B. Printer software, firmware diagram



C. Configuration report (Test page)

SHARP

Custom Settings List

Model name

HARDWARE STATUS

Machine Information

Resolution: 600dpi
Language: American English

Hardware Specs

Base Memory: 128MB
Optional Memory: 0MB
Total Memory: 128MB

Firmware Version

PCU: 01.03.01
MAIN: p1.11
BOOT: P1.2A
SCANNER: 01.03.01

Installed Device

Duplex System: Duplex Module
Paper Feeding Options: Stand/MPD&2000 Sheet Paper Drawer
Paper Exit Options: Finisher
Punch Unit: Not Installed
Extended: Not Installed

Total Count

22971

SOFTWARE STATUS

PCL Emulation

Font Source: Internal
Font Number: 0
Font: Courier
Pitch Size: 10.00
Point Size: 12.00
Symbol Set: PC-8

Network Information

NIC Firmware Version: 01.00.15
IP Address: 10.36.152.240
IP Subnet Mask: 255.255.255.0
IP Gateway: 10.36.152.1
Device Name: SCB6AFD1
Domain Name: Sharp-Printer
Enable TCP/IP: Yes
Enable DHCP: No
Enable NetWare: Yes
Enable EtherTalk: Yes
Enable NetBEUI: Yes

PRINTER CONDITION SETTINGS

Printer Default Settings

Smoothing: Off
Copies: 1Set
Orientation: Portrait
Default Paper Size: 8½x11
Default Paper Type: Plain
Default Output Tray: Finisher Top Tray
Line Thickness: 5
2-Sided Print: 1-Sided

PCL Settings

PCL Symbol Set Setting: PC-8
PCL Font Setting: Internal
Courier
Line Feed Code: CR/LF/FF
Wide A4: Off

INPUT TRAY SETTINGS

Tray Settings

Tray 1: Plain / 8½x11
Tray 2: Plain / 8½x11R
Tray 3: Plain / 8½x11
Auto Tray Switching: On

1	2
☒	☒
☒	☒
☒	☒

1: PRINT
2: COPY

User Type Settings

User Type 1: USER TYPE 1
User Type 2: USER TYPE 2
User Type 3: USER TYPE 3
User Type 4: USER TYPE 4
User Type 5: USER TYPE 5
User Type 6: USER TYPE 6
User Type 7: USER TYPE 7

1	2	3
☐	☐	☐
☐	☐	☐
☐	☐	☐
☐	☐	☐
☐	☐	☐
☐	☐	☐
☐	☐	☐

1: Fixed Paper Side
2: Disable Duplex
3: Disable Staple

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[11] TROUBLE CODES

1. General

When a trouble occurs in the machine or when the life of a consumable part is nearly expired or when the life is expired, the machine detects and displays it on the display section. This allows the user and the serviceman to take the suitable action. In case of a trouble, this feature notifies the occurrence of a trouble and stops the machine to minimize the damage.

- 1) Securing safety. (The machine is stopped on detection of a trouble.)
- 2) The damage to the machine is minimized. (The machine is stopped on detection of a trouble.)
- 3) By displaying the trouble content, the trouble position can be quickly identified. (This allows to perform an accurate repair, improving the repair efficiency.)
- 4) Preliminary warning of running out of consumable parts allows to arrange for new parts in advance of running out. (This avoids stopping of the machine due to running out the a consumable part.)

2. Trouble codes list

Trouble codes		Contents	Remark	Trouble detection
C1	00	MC trouble		PCU
E6	11	CSI shading trouble (White correction)	When the scanner is installed	SCANNER
	14	CIS communication trouble	When the scanner is installed	SCANNER
E7	01	System data trouble		ICU
	02	Laser trouble		PCU
	03	HDD trouble	With HDD installed	ICU
	06	Decode error trouble		ICU
	10	Shading trouble (Black correction)	When the scanner is installed	SCANNER
	11	Shading trouble (White correction all pixel adjustment)	When the scanner is installed	SCANNER
	14	CCD communication trouble	When the scanner is installed	SCANNER
	17	SPF scanning position adjustment trouble (Detected only when executing an adjustment SIM.)		
	50	LSU connection trouble		PCU
	60	Controller skating trouble		
	80	Communication trouble (ICU detection) between ICU and scanner	When the scanner is installed	ICU
	90	Communication trouble (ICU detection) between ICU and PCU	When the scanner is installed	ICU
F1	00	Finisher communication trouble	With Finisher installed	PCU
		Mail-bin stacker communication trouble	With Mail bin stacker installed	PCU

Trouble codes		Contents	Remark	Trouble detection
F1	02	Finisher transport motor abnormality	With Finisher installed	PCU
		Mail-bin stacker transport motor abnormality	With Mail bin stacker installed	
	03	Console finisher paddle motor trouble	With Console Finisher installed	PCU
	06	Console finisher slide motor trouble	With Console Finisher installed	PCU
	08	Finisher staple shift motor trouble	With Finisher installed	PCU
	10	Finisher stapler motor trouble	With Finisher installed	PCU
		Console finisher stapler motor trouble	With Console Finisher installed	PCU
	11	Finisher bundle exit motor trouble	With Finisher installed	PCU
		Console finisher bundle exit motor trouble	With Console Finisher installed	PCU
	12	Mail-bin stacker gate trouble	With Mail bin stacker installed	PCU
	15	Finisher lift motor trouble	With Finisher installed	PCU
		Console finisher lift motor trouble	With Console Finisher installed	PCU
	19	Finisher front alignment motor trouble	With Finisher installed	PCU
		Console finisher front alignment motor trouble	With Console Finisher installed	PCU
	20	Finisher rear alignment motor trouble	With Finisher installed	PCU
		Console finisher rear alignment motor trouble	With Console Finisher installed	PCU
	30	Console finisher communication trouble	With Console Finisher installed	PCU
	31	Console finisher fold sensor trouble	With Console Finisher installed	PCU
	32	Communication trouble between the console finisher and the punch unit.	With Console Finisher installed	PCU
	33	Console finisher punch side registration motor trouble	With Console Finisher installed	PCU
	34	Console finisher punch motor trouble	With Console Finisher installed	PCU
	35	Console finisher punch side registration sensor trouble	With Console Finisher installed	PCU

Trouble codes		Contents	Remark	Trouble detection
F1	36	Console finisher punch timing sensor trouble	With Console Finisher installed	PCU
	37	Console finisher backup RAM trouble	With Console Finisher installed	PCU
	38	Console finisher punch backup RAM trouble	With Console Finisher installed	PCU
	39	Console finisher punch dust sensor trouble	With Console Finisher installed	PCU
	40	Console finisher punch power interruption trouble	With Console Finisher installed	PCU
	80	Finisher power abnormality	With Finisher installed	PCU
		Mail-bin stacker power abnormality	With Mail bin stacker installed	PCU
	81	Console finisher transport motor abnormality	With Console Finisher installed	PCU
	87	Finisher staple rotation motor trouble	With Finisher installed	
F2	00	Toner control sensor open/sensor trouble		PCU
	02	Toner supply abnormality		PCU
	04	Improper cartridge (life cycle error, etc.)		PCU
	05	CRUM error		PCU
	06	CRUM ID error		PCU
	39	Process thermistor trouble		PCU
F3	12	Machine no. 1 tray lift-up trouble		PCU
	22	Machine tray 2 lift-up trouble	Multi-purpose tray	PCU
F6	00	Communication trouble (ICU detection) between ICU and FAX	When the Fax board is installed	ICU
	01	FAX expansion flash memory abnormality (ICU detection)	When the Fax board is installed	ICU
	04	FAX modem operation abnormality	When the Fax board is installed	FAX
	20	FAX write protect cancel	When the Fax board is installed	FAX
	21	Combination abnormality of the TEL/LIU PWB and the FAX soft switch	When the Fax board is installed	FAX
	97	FAX-BOX skating trouble	When the Fax board is installed	FAX
	98	Combination error of the FAX-BOX destination information and the machine destination information	When the Fax board is installed	FAX
F7	01	FAX board EEPROM read/write error	When the Fax board is installed	FAX
H2	00	Thermistor open (HL1)		PCU
	01	Thermistor open (HL2)		PCU

Trouble codes		Contents	Remark	Trouble detection
H3	00	Fusing section high temperature trouble (HL1)		PCU
	01	Fusing section high temperature trouble (HL2)		PCU
H4	00	Fusing section low temperature trouble (HL1)		PCU
	01	Fusing section low temperature trouble (HL2)		PCU
H5	01	5-time continuous POD1 not-reaching jam detection		PCU
L1	00	Scanner feed trouble	When the scanner is installed	SCANNER
L3	00	Scanner return trouble	When the scanner is installed	SCANNER
L4	01	Main motor lock detection		PCU
	02	Drum motor lock detection		PCU
	30	Controller fan motor lock detection		
L6	10	Polygon motor lock detection		PCU
L8	01	No fullwave signal		PCU
	02	Full wave signal width abnormality		PCU
U1	01	FAX battery abnormality	With FAX board installed	Controller
	02	RTC read abnormality (common with FAX, on ICU PWB)	When the Fax board is installed	ICU
U2	00	EEPROM read/write error (ICU)		Controller
	11	Counter check sum error (ICU)		Controller
	12	Adjustment value check sum error (ICU)		Controller
	22	SRAM memory check sum error (ICU)		ICU
	23	SRAM memory individual data check sum error (ICU)		
	50	HD section individual data check sum error (ICU)		
	80	EEPROM read/write error (Scanner)	When the scanner is installed	SCANNER
	81	Memory check sum error (Scanner)	When the scanner is installed	SCANNER
	90	EEPROM read/write error (PCU)		PCU
	91	Memory check sum error (PCU)		PCU
U6	00	Desk/LCC communication trouble	With Paper feed desk installed	PCU
	01	Desk/LCC No. 1 tray lift-up trouble	With Paper feed desk installed	PCU
	02	Desk No. 2 tray/LCC1 lift-up trouble	With Paper feed desk installed	PCU
	03	Desk No. 3 tray/LCC2 lift-up trouble	With Paper feed desk installed	PCU
	10	Desk/LCC transport motor trouble	With Paper feed desk installed	PCU

Trouble codes		Contents	Remark	Trouble detection
U7	00	RIC communication trouble		Controller
CH	--	Door open (CH ON)		PCU
	00	No developer cartridge		PCU
	01	No toner cartridge		PCU
	02	No drum cartridge		PCU
EE	EL	Auto developer adjustment trouble (Over-toner)	Only during DIAG	PCU
	EU	Auto developer adjustment trouble (Under-toner)	Only during DIAG	PCU
PC	--	Personal counter not installed		Controller
PF	--	RIC copy inhibit signal is received.		Controller
--	--	Auditor not ready		Controller

3. Details of trouble codes

MAIN	SUB	Details	
C1	00	Content	MC trouble
		Detail	Main charger output abnormality (Output open) Trouble signal is outputted from the high voltage transformer.
		Cause	The main charger is not installed properly. The main charger is not assembled properly. Disconnection of connector of high voltage transformer. High voltage harness disconnection or breakage.
		Check and remedy	Use the SIM 8-2 to check the main charger output. Check for disconnection of the main charger. Replace the high voltage unit.
E6	11	Content	CSI shading trouble (White correction)
		Details	The CIS white reference plate scan level is abnormal when the lamp is on.
		Cause	Abnormal harness installation to CIS unit Dirt on the white reference plate. CIS lighting error CIS unit installation trouble CIS unit abnormality Scanner PWB abnormality
		Check & Remedy	Clean the white reference plate. Check CIS light quantity (SIM 5-3) and lighting. Check CIS unit harness. Check scanner PWB.
	14	Content	CIS communication trouble
		Details	Communication trouble (clock sync) between scanner PWB and CIS-ASIC
		Cause	Abnormal harness installation to CIS unit CIS unit abnormality Scanner PWB abnormality
		Check & Remedy	Check CIS unit harness. Check CIS unit. Check scanner PWB.

MAIN	SUB	Details	
E7	01	Content	System data trouble
		Detail	When in data storage/acquiring of the HDD system area, the HDD responds an error and does not respond for 30sec, it is judged as a trouble.
		Cause	The HDD is not properly installed to the ICU PWB. The HDD does not work for the ICU PWB. ICU PWB abnormality
		Check and remedy	Check installation of the HDD to the ICU PWB. Check harness connection of the HDD from the ICU PWB. Use SIM62-2, 3 to check the HDD read/write. Replace the HDD. Replace the ICU PWB.
E7	02	Content	Laser trouble
		Detail	BD signal from LSU is kept OFF, or ON.
		Cause	The connector of LSU or the harness in LSU is disconnected or broken. The polygon motor does not rotate normally. The laser home position sensor in LSU is shifted. The proper voltage is not supplied to the power line for laser. Laser emitting diode trouble PCU PWB trouble ICU PWB trouble
		Check and remedy	Check for disconnection of the LSU connector. Use SIM 61-1 to check LSU operation. Check that the polygon motor rotates normally or not. Check light emission of laser emitting diode. Replace the LSU unit. Replace the PCU PWB. Replace the ICU PWB.
	03	Content	HDD trouble
		Detail	HDD connection failure If the HDD responds an error or does not respond for 30sec, it is judged as an error. (Other than the system area) Data abnormality in the file management area (when the cluster chain is broken)
		Cause	HDD is not installed properly to the ICU PWB. HDD does not operate properly in the ICU PWB. ICU PWB trouble
		Check and remedy	Check installation of HDD to the ICU PWB. Check connection of the harness of HDD to the ICU PWB. Use SIM 62-2, -3 to check read/write of HDD. Replace HDD. Replace ICU PWB.

MAIN	SUB	Details	
E7	06	Content	Decode error trouble
		Detail	A decode error occurs during making of an image.
		Cause	Data error during input from PCI to PM. PM trouble Data error during image compression/transfer. ICU PWB abnormality
		Check and remedy	Check insertion of the PWB. (PCI bus) If the error occurred in a FAX job, check installation of the FAX PWB. For the other cases, check the ICU PWB. Replace the ICU PWB.
	10	Content	Shading trouble (Black correction)
		Details	CCD black scan level abnormality when the copy lamp is off.
		Cause	Abnormal installation of flat cable to CCD unit. CCD unit abnormality Scanner PWB abnormality
		Check & Remedy	Check installation of CCD unit flat cable. Check CCD unit. Check scanner PWB.
	11	Content	Shading trouble (White correction all pixel adjustment)
		Details	CCD white reference plate scan level abnormality when the copy lamp is ON.
		Cause	Abnormal installation of flat cable to CCD unit. Dirt on mirror, lens, white reference plate Copy lamp lighting abnormality Abnormal installation of CCD unit CCD unit abnormality Scanner PWB abnormality
		Check & Remedy	Clean mirror, lens, and white reference plate. Check copy lamp light quantity (SIM 5-3) and lighting. Check CCD unit. Check scanner PWB.
	14	Content	CCD communication trouble
		Details	Communication trouble (clock sync) between scanner PWB and CCD-ASIC
		Cause	Abnormal installation of harness to CCD unit CCD unit abnormality Scanner PWB abnormality
		Check & Remedy	Check CCD unit harness. Check CCD unit. Check scanner PWB.
	17	Content	SPF scanning position adjustment trouble (Detected only when executing an adjustment SIM.)
		Details	The black Mylar which serves as the reference of the SPF scanning position is not detected.
		Cause	Black Mylar installing failure on the SPF side
		Check & Remedy	Check the SPF black Mylar.

MAIN	SUB	Details	
E7	50	Content	LSU connection trouble
		Detail	An LSU which does not conform to the machine is installed.
		Cause	LSU connection trouble PCU PWB trouble LSU trouble
		Check and remedy	Check LSU PWB. Check PCU PWB. Check connection of the connector and the harness between PCU and LSU.
	60	Content	Controller skating trouble
		Detail	Occurrence of an error in controller skating check
		Cause	Discrepancy in the combination of the controller PWB and the ROM
		Check and remedy	Check the controller PWB. Check the combination of the controller PWB and the ROM.
	80	Content	Communication trouble (ICU detection) between ICU and scanner
		Details	Communication establishment error/ Fleming/Parity/Protocol error
		Cause	Defective connection of slave unit PWB connector Defective harness between slave unit PWB and ICU PWB Slave unit PWB mother board connector pin breakage
		Check & Remedy	Check connector and harness of slave unit PWB and ICU PWB. Check grounding of machine.
	90	Content	Communication trouble (ICU detection) between ICU and PCU
		Details	Communication establishment error/ Fleming/Parity/Protocol error
		Cause	Defective connection of slave unit PWB connector Defective harness between slave unit PWB and ICU PWB Slave unit PWB mother board connector pin breakage
		Check & Remedy	Check connector and harness of slave unit PWB and ICU PWB. Check grounding of machine.
F1	00	Content	Finisher communication trouble
		Detail	Communication cable test error after turning on the power or exiting from SIM. Communication error with the finisher
		Cause	Improper connection or disconnection of connectors and harness between the machine and the finisher. Finisher control PWB trouble Control PWB (PCU) trouble Malfunction by noises
		Check and remedy	Canceled by turning OFF/ON the power. Check connectors and harness in the communication line. Replace the finisher control PWB or PCU PWB.

MAIN	SUB	Details	
F1	00	Content	Mail-bin stacker communication trouble
		Detail	Communication cable test error after turning on the power or exiting from SIM. Communication error with the Mail-bin stacker.
		Cause	Improper connection or disconnection of connector and harness between the machine and the Mail-bin stacker. Mail-bin stacker control PWB trouble Control PWB (PCU) trouble Malfunction by noises
		Check and remedy	Canceled by turning OFF/ON the power. Check harness and connector in the communication line. Replace the Mail-bin stacker PWB or PCU PWB.
	02	Content	Finisher transport motor abnormality
		Detail	Transport motor drive trouble
		Cause	Motor lock Drive abnormality Defective connection or disconnection between the PWB and the motor. Motor RPM abnormality Overcurrent to the motor Finisher control PWB trouble
		Check and remedy	Use SIM 3-3 to check the transport motor operation.
	02	Content	Mail-bin stacker transport motor abnormality
		Detail	Transport motor trouble
		Cause	Motor lock Drive abnormality Defective connection or disconnection between the PWB and the motor. Motor rpm abnormality Overcurrent to the motor Mail-bin stacker control PWB trouble
		Check and remedy	Use SIM3-21 to check the transport motor operation.
	03	Content	Console finisher paddle motor trouble
		Detail	Paddle motor operation abnormality
		Cause	Motor lock Motor rpm abnormality Overcurrent to the motor Console finisher control PWB trouble
		Check and remedy	Use SIM3-3 to check the motor operation.
	06	Content	Console finisher slide motor trouble
		Detail	Slide motor operation abnormality
		Cause	Motor lock Motor rpm abnormality Overcurrent to the motor Console finisher control PWB trouble
		Check and remedy	Use SIM3-3 to check the motor operation.

MAIN	SUB	Details	
F1	08	Content	Finisher staple shift motor trouble
		Detail	Staple motor drive trouble
		Cause	Motor lock Drive abnormality Defective connection or disconnection between the PWB and the motor. Home position sensor abnormality Motor rpm abnormality Finisher control PWB trouble
		Check and remedy	Use SIM3-3 to check operations of the staple motor.
	10	Content	Finisher stapler motor trouble
		Detail	Stapler motor operation abnormality
		Cause	Motor lock Defective connection or disconnection between the PWB and the motor. Home position sensor abnormality Motor rpm abnormality Overcurrent to the motor Console finisher control PWB trouble
		Check and remedy	Use SIM3-3 to check the motor operation.
	10	Content	Console finisher stapler motor trouble
		Detail	Stapler motor operation abnormality
		Cause	Motor lock Motor rpm abnormality Overcurrent to the motor Console finisher control PWB trouble
		Check and remedy	Use SIM3-3 to check the motor operation.
	11	Content	Finisher bundle exit motor trouble
		Detail	Bundle exit motor operation abnormality
		Cause	Motor lock Drive abnormality Defective connection or disconnection between the PWB and the motor. Home position sensor abnormality Motor rpm abnormality Console finisher control PWB trouble
		Check and remedy	Use SIM 3-3 to check the bundle exit motor operation and the paddle solenoid operation, or use SIM 3-2 to check the boomerang rotations sensor.
	11	Content	Console finisher bundle exit motor trouble
		Detail	Bundle exit motor operation abnormality
		Cause	Motor lock Motor rpm abnormality Overcurrent to the motor Console finisher control PWB trouble
		Check and remedy	Use SIM3-3 to check the motor operation.
	12	Content	Mail-bin stacker gate trouble
		Detail	Gate operation abnormality
		Cause	Gate lock Defective connection or disconnection between the PWB and the solenoid. Mail-bin stacker control PWB trouble
		Check and remedy	Use SIM3-21 to check the transport gate operation.

MAIN	SUB	Details	
F1	15	Content	Finisher lift motor trouble
		Detail	Lift motor operation abnormality
		Cause	Motor lock Motor rpm abnormality Overcurrent to the motor Finisher control PWB trouble
		Check and remedy	Use SIM3-3 to check the lift motor operation.
	15	Content	Console finisher lift motor trouble
		Detail	Lift motor operation abnormality
		Cause	Motor lock Drive abnormality Defective connection or disconnection between the PWB and the motor. Upper/lower limit sensor trouble Motor rpm abnormality Overcurrent to the motor Console finisher control PWB trouble
		Check and remedy	Use SIM3-3 to check the motor operation.
	19	Content	Finisher front alignment motor trouble
		Detail	Front alignment motor operation abnormality
		Cause	Motor lock Drive abnormality Defective connection or disconnection between the PWB and the motor. Home position sensor abnormality Motor rpm abnormality Finisher control PWB trouble
		Check and remedy	Use SIM3-3 to check the motor operation.
	19	Content	Console finisher front alignment motor trouble
		Detail	Front alignment motor operation abnormality
		Cause	Motor lock Motor rpm abnormality Overcurrent to the motor Console finisher control PWB trouble
		Check and remedy	Use SIM3-3 to check the motor operation.
	20	Content	Finisher rear alignment motor trouble
		Detail	Rear alignment motor operation abnormality
		Cause	Motor lock Drive abnormality Defective connection or disconnection between the PWB and the motor. Home position sensor abnormality Motor rpm abnormality Finisher control PWB trouble
		Check and remedy	Use SIM3-3 to check the motor operation.
	20	Content	Console finisher rear alignment motor trouble
		Detail	Rear alignment motor operation abnormality
		Cause	Motor lock Motor rpm abnormality Overcurrent to the motor Console finisher control PWB trouble
		Check and remedy	Use SIM3-3 to check the motor operation.

MAIN	SUB	Details	
F1	30	Content	Console finisher communication trouble
		Detail	Communication cable test error after turning on the power or exiting from SIM. Communication error with the console finisher
		Cause	Improper connection or disconnection of connector and harness between the machine and the console finisher. Console finisher control PWB trouble Control PWB (PCU) trouble Malfunction by noises
		Check and remedy	Canceled by turning OFF/ON the power. Check connectors and harness in the communication line. Replace the console finisher control PWB or PCU PWB.
	31	Content	Console finisher fold sensor trouble
		Detail	Sensor input value abnormality
		Cause	Sensor breakage harness breakage Console finisher control PWB trouble
		Check and remedy	Use SIM3-2 to check the sensor operation.
	32	Content	Communication trouble between the console finisher and the punch unit.
		Detail	Communication err between the console finisher and the punch unit.
		Cause	Improper connection or disconnection of connector and harness between the console finisher and the punch unit. Console finisher control PWB trouble Control PWB (PCU) trouble Malfunction by noise
		Check and remedy	Canceled by turning OFF/ON the power. Check connectors and harness in the communication line. Replace the console finisher control PWB.
	33	Content	Console finisher punch side registration motor trouble
		Detail	Punch side registration motor operation abnormality
		Cause	Motor lock Motor rpm abnormality Overcurrent to the motor Console finisher control PWB trouble
		Check and remedy	Use SIM3-3 to check the motor operation.
	34	Content	Console finisher punch motor trouble
		Detail	Punch motor operation abnormality
		Cause	Motor lock Motor rpm abnormality Overcurrent to the motor Console finisher control PWB trouble
		Check and remedy	Use SIM3-3 to check the motor operation.
	35	Content	Console finisher punch side registration sensor trouble
		Detail	Sensor input value abnormality
		Cause	Sensor breakage Harness disconnection Console finisher control PWB trouble
		Check and remedy	Use SIM3-2 to check the sensor operation.

MAIN	SUB	Details	
F1	36	Content	Console finisher punch timing sensor trouble
		Detail	Sensor input value abnormality
		Cause	Sensor breakage Harness disconnection Console finisher control PWB trouble
		Check and remedy	Use SIM3-2 to check the sensor operation.
	37	Content	Console finisher backup RAM trouble
		Detail	Backup RAM contents are disturbed.
		Cause	Console finisher control PWB trouble Malfunction by noise
		Check and remedy	Replace the console finisher control PWB.
	38	Content	Console finisher punch backup RAM trouble
		Detail	Punch unit backup RAM contents are disturbed.
		Cause	Punch control PWB trouble Malfunction by noise
		Check and remedy	Replace the punch control PWB.
	39	Content	Console finisher punch dust sensor trouble
		Detail	Punch dust sensor detection trouble
		Cause	When the punch dust sensor is not normally detected.
		Check and remedy	Sensor breakage Harness disconnection Punch control PWB trouble
	40	Content	Console finisher punch power interruption trouble
		Detail	When power interruption of the punch unit is detected
		Cause	Though 24V is supplied to the punch unit, the punch unit detects power interruption.
		Check and remedy	Harness disconnection Punch control PWB trouble
	80	Content	Finisher power abnormality
		Detail	The 24V power is not supplied to the finisher PWB.
		Cause	Improper connection or disconnection of connector and harness Finisher control PWB trouble Power unit trouble
		Check and remedy	Use SIM3-2 to check the sensor.
	80	Content	Mail-bin stacker power abnormality
		Detail	The 24V power is not supplied to the Mail-bin stacker PWB.
		Cause	Improper connection or disconnection of connector and harness Mail-bin stacker control PWB trouble Power unit trouble
		Check and remedy	Use SIM3-20 to check the sensor operation.
	81	Content	Console finisher transport motor abnormality
		Detail	Transport motor trouble
		Cause	Motor lock Motor rpm abnormality Overcurrent to the motor Console finisher control PWB trouble
		Check and remedy	Use SIM3-3 to check the motor operation.

MAIN	SUB	Details	
F1	87	Content	Finisher staple rotation motor trouble
		Detail	Front staple rotation motor trouble
		Cause	Motor lock Drive abnormality Defective connection or disconnection between the PWB and the motor. Home position sensor abnormality Motor rpm abnormality Overcurrent to the motor Finisher control PWB trouble
		Check and remedy	Use SIM3-3 to check the motor operation.
	00	Content	Toner control sensor open/sensor trouble
		Detail	Toner control sensor output open
		Cause	Connector harness trouble Connector disconnection Sensor trouble
		Check and remedy	Check connection of the toner control sensor. Check connection of connector and harness to the main PWB. Check for disconnection of harness. Replace the sensor.
	02	Content	Toner supply abnormality
		Detail	Toner control sensor output value becomes under-toner too earlier.
		Cause	Connector harness trouble Toner concentration sensor trouble Toner cartridge trouble
		Check and remedy	Check connection of the connector in the toner motor section. Check connection of connector and harness to the main PWB. Check for disconnection of harness. Toner concentration sensor output check SIM25-1. Replace the toner cartridge.
F2	04	Content	Improper cartridge (life cycle error, etc.)
		Detail	An improper process cartridge is inserted.
		Cause	IC chip trouble Improper cartridge
		Check and remedy	Insert a proper cartridge.
	05	Content	CRUM error
		Detail	Communication with IC chip cannot be made.
		Cause	IC chip trouble IC chip contact failure Improper cartridge
		Check and remedy	Insert a proper cartridge. Is the cartridge installed properly?
	06	Content	CRUM ID error
		Detail	IC chip trouble
		Cause	Improper cartridge
		Check and remedy	Insert a proper cartridge.

MAIN	SUB	Details	
F2	39	Content	Process thermistor trouble
		Detail	Output value abnormality of the temperature sensor of temperature/humidity sensor
		Cause	Temperature/humidity sensor abnormality Temperature/humidity sensor harness connection failure PCU PWB trouble
		Check and remedy	Check connection of the harness and the connector of the temperature/humidity sensor. Replace the temperature/humidity sensor. Check PCU PWB.
	58	Content	Process humidity sensor breakdown
		Detail	Process humidity sensor open or short
		Cause	Temperature/humidity sensor harness connection failure Temperature/humidity sensor abnormality PCU PWB trouble
		Check and remedy	Check connection of the harness and the connector of the temperature/humidity sensor. Replace the temperature/humidity sensor. Check PCU PWB.
	12	Content	Machine no. 1 tray lift-up trouble
		Detail	LUD does not turn ON in the specified time.
		Cause	LUD trouble No. 1 tray lift-up trouble Check connection of harness between the PCVU PWB, lift-up unit, and paper feed unit.
		Check and remedy	Check LUD, and their harness and connectors. Check the lift-up unit.
F3	22	Content	Machine tray 2 lift-up trouble
		Detail	MCLUD does not turn ON in the specified time.
		Cause	MCLUD trouble No. 2 tray lift-up motor trouble Harness disconnection f the PCU PWB, the lift-up unit, and the paper feed unit.
		Check and remedy	Check MCLUD, and their harness and connectors. Check the lift-up unit.
F6	00	Content	Communication trouble (ICU detection) between ICU and FAX
		Details	Communication establishment error/Fleming/Parity/Protocol error
		Cause	Slave unit PWB connector disconnection Harness abnormality between slave unit PWB and ICU PWB. Slave unit PWB mother board connector pin breakage Slave unit ROM abnormality/No ROM/ Reverse insertion of ROM/ROM pin breakable
		Check & Remedy	Check connector harness between slave unit PWB and ICU PWB. Check grounding of machine. Check slave unit PWB ROM.

MAIN	SUB	Details	
F6	01	Content	FAX expansion flash memory abnormality (ICU detection)
		Details	Flash memory cannot be deleted.
		Cause	Flash memory cannot be deleted.
		Check & Remedy	Check the FAX image storage Flash memory. Use SIM 66-10 to clear the flash memory.
	04	Content	FAX modem operation abnormality
		Details	FAX PWB modem chip operation abnormality
		Cause	Modem chip operation abnormality in FAX PWB
		Check & Remedy	Replace FAX PWB.
	20	Content	FAX write protect cancel
		Detail	The write protect JP is released.
		Cause	The write protect JP is set to "write allow." FAX interface PWB trouble FAX PWB trouble
		Check and remedy	Check the write protect JP. Replace the FAX PWB. Replace the FAX interface PWB.
	21	Content	Combination abnormality of the TEL/LIU PWB and the FAX soft switch
		Detail	Combination abnormality of the TEL/LIU PWB and the FAX PWB information (soft switch) Or the TEL/LIU PWB is not a new one for new MDMC PWB.
		Cause	The destination of the installed TEL/LIU PWB differs. The FAX PWB information (soft switch) differs. TEL/LIU PWB trouble
		Check and remedy	Check the destination of the TEL/LIU PWB. Check the FAX PWB information (soft switch). Replace the TEL/LIU PWB.
	97	Content	FAX-BOX skating trouble The FAX-BOX PWB is not one for the AR-FX12. (FAX detection)
		Detail	The FAX-BOX MODEM controller is not one for the AR-FX12.
		Cause	The FAX-BOX Modem controller PWB information (hard detection) is not for the AR-FX12. (The Modem controller PWB for the AR-FX5 or the AR-FX6 is used.)
		Check and remedy	Check the FAX-BOX modem controller PWB. Replace it with a modem controller PWB for the AR-FX12.

MAIN	SUB	Details	
F6	98	Content	Combination error of the FAX-BOX destination information and the machine destination information
		Detail	Combination error of the FAX-BOX destination information and the machine destination information
		Cause	Because of improper combination between the destination information stored in the EEPROM on the FAX-BOX PWB and that of the machine (set with SIM 26-6).
		Check and remedy	Check the destination of the FAX-BOX. Check the machine destination with SIM 26-6. Use a proper combination of the machine and the FAX-BOX.
F7	01	Content	FAX board EEPROM read/write error
		Details	EEPROM access error (read/write)
		Cause	EEPROM trouble FAX PWB EEPROM access circuit trouble
		Check & Remedy	When replacing the EEPROM, use SIM66-4/5 (Signal send level) and SIM66-14/15/16 (Dial test) for adjustment. However, note that all the soft switches are reset to the initial values. No need to adjust when the PWB is replaced.
H2	00... HL1 01... HL2	Content	Thermistor open Fusing unit not installed
		Detail	Thermistor is open. (An input voltage of 2.92V or above is detected.) Fusing unit not installed
		Cause	Thermistor trouble Control PWB trouble Fusing section connector disconnection AC power trouble Fusing unit not installed
		Check and remedy	Check harnesses and connectors from the thermistor to the control PWB. Use SIM14 to clear the self diag display.

MAIN	SUB	Details	
H3	00... HL1 01... HL2	Content	Fusing section high temperature trouble
		Detail	The fusing temperature exceeds 242°C. (An input voltage of 0.27V or above is detected.) Fusing temperature control is started, and 242°C is detected three or more times continuously in sampling in the specified interval. (Every 300msec)
		Cause	Thermistor trouble Control PWB trouble Fusing section connector disconnection AC power trouble
		Check and remedy	Use SIM5-2 to check the heater lamp Blinking operation. If the heater lamp blinks normally: Check the thermistor and its harness. Check the thermistor input circuit in the control PWB. If the heater lamp keep lighting: Check the AC PWB and the lamp control circuit in the control PWB. Use SIM14 to cancel the trouble
H4	00... HL1 01... HL2	Content	Fusing section low temperature trouble
		Detail	The set temperature is not reached within the specified time (3 min) after turning on the power relay, or the temperature does not reach 80°C within 80 sec. When the heater lamp is not turned off in the specified time (3 min) from starting warm-up, or the temperature does not reach 80°C within 80 sec. After completion of warm-up operation, a temperature 50°C lower than the temperature control level is detected 5 times continuously in sampling in the specified interval. (every 300msec)
		Cause	Thermistor trouble Heater lamp trouble Control PWB trouble Thermostat trouble AC power trouble Interlock switch trouble
		Check and remedy	Use SIM5-2 to check the heater lamp Blinking operation. If the heater lamp blinks normally: Check the thermistor and its harness. Check the thermistor input circuit in the control PWB. If the heater lamp does not light: Check for heater lamp disconnection and thermostat disconnection. Check the interlock switch. Check the AC PWB and the lamp control circuit in the control PWB. Use SIM14 to cancel the trouble.

MAIN	SUB	Details	
H5	01	Content	5-time continuous POD1 not-reaching jam detection
		Detail	5-time continuous POD1 not-reaching jam detection
		Cause	A fusing section jam is not properly removed. (Jam paper remains.) POD1 sensor trouble, or harness disconnection Improper installation of fusing unit
		Check and remedy	Check jam paper in the fusing section. (winding, etc.) Check POD1 sensor harness, and check the fusing unit installation. Use SIM14 to cancel the trouble.
L1	00	Content	Scanner feed trouble
		Details	Scanner feed is not completed within the specified time.
		Cause	Scanner unit abnormality Scanner wire disconnection
		Check & Remedy	Check scanning with SIM 1-1.
L3	00	Content	Scanner return trouble
		Details	Scanner return is not completed within the specified time.
		Cause	Scanner unit abnormality Scanner wire disconnection
		Check & Remedy	Check scanning with SIM 1-1.
L4	01	Content	Main motor lock detection
		Detail	The motor lock signal is detected for 1.5sec during rotation of the main motor.
		Cause	main motor trouble Check connection of harness between the PCU PWB and the main motor. Control circuit trouble
		Check and remedy	Use SIM25-1 to check the main motor operation. Check harness and connector between the PCU PWB and the main motor.
	02	Content	Drum motor lock detection
		Detail	The motor lock signal is detected for 1.5sec during rotation of the drum motor.
		Cause	Drum motor trouble Improper connection of harness between the PCU PWB and the drum motor. Control circuit trouble
		Check and remedy	Use SIM6-1 to check the drum motor operation. Check harness and connector between the PCU PWB and the drum motor.

MAIN	SUB	Details	
L4	30	Content	Controller fan motor lock detection
		Detail	The motor lock signal is detected during rotation of the controller fan motor. The motor lock signal is detected during rotation of the HDD fan motor.
		Cause	Fan motor trouble Improper connection of the harness between the controller PWB and the fan motor. Control circuit trouble
		Check and remedy	Use SIM 6-2 to check the fan motor operation. Check the harness and the connector between the controller PWB and the fan motor.
L6	10	Content	Polygon motor lock detection
		Detail	It is judged that the polygon motor lock signal is not outputted. Lock signal is checked in the interval of 10sec after starting the polygon motor, and it is judged that the polygon motor does not rotate normally.
		Cause	The LSU connector or harness in the LSU is disconnected or broken. Polygon motor trouble
		Check and remedy	Use SIM61-1 to check the polygon motor operation. Check connector and harness connection. Replace LSU.
L8	01	Content	No fullwave signal
		Detail	Full wave signal is not detected.
		Cause	The PCU PWB connector or the power unit harness is disconnected or broken. PCU PWB trouble 12V power source trouble
		Check and remedy	Check connection of the harness and connector. Replace PCU PWB. Replace the power unit. Replace the controller connection mother board.
	02	Content	Full wave signal width abnormality
		Detail	It is judged as full wave signal frequency abnormality. (When the detection cycle is judged as 69Hz or above or 42.5Hz or below)
		Cause	The connector or harness of the PCU PWB and the power PWB is disconnected. PCU PWB trouble Power unit trouble
		Check and remedy	Check connection of the harness and connector. Replace the PCU PWB. Replace the power unit.

MAIN	SUB	Details	
U1	01	Content	FAX battery abnormality
		Detail	FAX backup SRAM battery voltage fall
		Cause	Battery life Battery circuit abnormality
		Check and remedy	Check that the battery voltage is about 2.5V or above. Check the battery circuit.
	02	Content	RTC read abnormality (common with FAX, on ICU PWB)
		Details	The value read from RTC on ICU PWB is [EE]h (abnormal).
		Cause	RTC circuit abnormality Battery voltage fall Battery circuit abnormality
U2	00	Check & Remedy	Set the time again with key operation, and check that time advances properly. Check RTC circuit. Check that battery voltage is about 2.5V or above. Check battery circuit.
		Content	EEPROM read/write error (ICU)
		Detail	EEPROM write error
		Cause	EEPROM trouble EEPROM is not initialized. ICU PWB EEPROM access circuit trouble
	11	Check and remedy	Check that EEPROM is properly inserted. Save the counter/adjustment values with the simulation. Use SIM16 to cancel U2 trouble. Replace the ICU PWB.
		Content	Counter check sum error (ICU)
U2	11	Detail	Counter data area check sum error
		Cause	EEPROM trouble Control circuit trouble by noise ICU PWB EEPROM access circuit trouble
		Check and remedy	Check that EEPROM is properly inserted. Save the counter/adjustment values with the DIAG simulation. Use DIAG (SIM16) to cancel U2 trouble. Replace the ICU PWB.
	12	Content	Adjustment value check sum error (ICU)
		Detail	Adjustment data area check sum error
		Cause	EEPROM trouble Control circuit trouble by noise ICU PWB EEPROM access circuit trouble
		Check and remedy	Check that EEPROM is properly inserted. Save the counter/adjustment values with the simulation. Use SIM16 to cancel U2 trouble. Replace the ICU PWB.

MAIN	SUB	Details	
U2	22	Content	SRAM memory check sum error (ICU)
		Detail	MFPC section SRAM memory check sum error
		Cause	SRAM trouble Control circuit runaway due to noises ICU PWB SRAM access circuit trouble
		Check and remedy	Initialize the communication management table registered in the SRAM and the FAX soft switch. Since the registered data are deleted, register the data again. Use SIM16 to cancel U2 trouble. Replace the ICU PWB.
	23	Content	SRAM memory individual data check sum error (ICU)
		Detail	Check sum error for every data in the SRAM memory of the MFPC section (Communication management table, sender registration data, etc.)
		Cause	SRAM trouble Control circuit runaway due to noises ICU PWB SRAM access circuit trouble
		Check and remedy	Automatically initialize the data related to the check sum error by turning OFF/ON the power. Since the registered data are deleted, register the data again. Use SIM16 to cancel U2 trouble. Replace the ICU PWB.
	50	Content	HD section individual data check sum error (ICU)
		Detail	Check sum error for every individual data in HD of the MFPC section (One-touch, Group, Program, etc.)
		Cause	HDD write/read error Control circuit runaway due to noises ICU PWB HD access circuit trouble
		Check and remedy	Automatically initialize the data related to the check sum error by turning OFF/ON the power. Since the registered data are deleted, register the data again. Use SIM 16 to cancel the U2 trouble. Replace the HD PWB. Replace the ICU PWB.
U2	80	Content	EEPROM read/write error (Scanner)
		Details	Scanner EEPROM write error
		Cause	EEPROM abnormality Scanner PWB EEPROM access circuit abnormality
		Check & Remedy	Check that EEPROM is set properly. Record counter/adjustment values with the simulation to protect the data from being deleted. Cancel U2 trouble with SIM 16. Replace scanner PWB.

MAIN	SUB	Details	
U2	81	Content	Memory check sum error (Scanner)
		Details	Scanner memory check sum error
		Cause	EEPROM trouble EEPROM which is not initialized is installed. Control circuit freeze by noises Scanner PWB EEPROM access circuit trouble
		Check & Remedy	Check that EEPROM is set properly. Record counter/adjustment values with the simulation to protect the data from being deleted. Cancel U2 trouble with SIM 16. Replace scanner PWB.
	90	Content	EEPROM read/write error (PCU)
		Detail	PCU EEPROM write error
		Cause	EEPROM trouble PCU PWB EEPROM access circuit trouble
		Check and remedy	Check that EEPROM is properly inserted. Record counter/adjustment values with the simulation to protect the data from being deleted. Use SIM16 to cancel U2 trouble. Replace the Controller PWB.
	91	Content	Memory check sum error (PCU)
		Detail	PCU memory check sum error
		Cause	EEPROM trouble EEPROM which is not initialized is installed. EEPROM is not initialized. PCU PWB EEPROM access circuit trouble Hang of control circuit due to noises
		Check and remedy	Check that EEPROM is properly inserted. Save the counter/adjustment values with the simulation. Use SIM16 to cancel U2 trouble. Replace the Controller PWB.
U6	00	Content	Desk/LCC communication trouble
		Detail	Desk/LCC communication error Communication cable test error after turning on the power or exiting SIM.
		Cause	Improper connection or disconnection of connector and harness Desk control PWB trouble Control PWB (PCU) trouble Noise or interference
		Check and remedy	Canceled by turning OFF/ON the power. Check connection of the harness and connector in the communication line.
	01	Content	Desk/LCC No. 1 tray lift-up trouble
		Detail	Desk/LCC No. 1 tray lift-up trouble
		Cause	Sensor trouble Tray trouble Defective connection or disconnection between the PWB and the motor. Desk control PWB trouble Lift-up motor trouble
		Check and remedy	Use SIM4-2 to check the upper limit sensor detection. Use SIM4-3 to check the lift-up motor operation.

MAIN	SUB	Details	
U6	02	Content	Desk No. 2 tray/LCC1 lift-up trouble
		Detail	Desk No. 2 tray/LCC lift-up trouble
		Cause	Sensor trouble Tray trouble Defective connection or disconnection between the PWB and the motor. Desk control PWB trouble Lift-up motor trouble
		Check and remedy	Use SIM4-2 to check the upper limit sensor detection. Use SIM4-3 to check the lift-up motor operation.
	03	Content	Desk No. 3 tray/LCC2 lift-up trouble
		Detail	Desk no. 3 tray lift-up trouble
		Cause	Sensor trouble Tray trouble Defective connection or disconnection between the PWB and the motor. Desk control PWB trouble Lift-up motor trouble
		Check and remedy	Use SIM4-2 to check the upper limit sensor detection. Use SIM4-3 to check the lift-up motor operation.
	10	Content	Desk/LCC transport motor trouble
		Detail	Desk/LCC transport motor operation trouble
		Cause	Motor lock Drive abnormality Defective connection or disconnection between the PWB and the motor. Motor rpm abnormality Overcurrent to the motor Desk control PWB trouble
		Check and remedy	Use SIM4-3 to check the transport motor operation.
U7	00	Content	RIC communication trouble
		Detail	RIC communication trouble Communication cable test error after turning on the power or exiting SIM.
		Cause	Disconnection of connector and harness RTC control PWB trouble Control PWB (ICU) trouble Noise or interference
		Check and remedy	Canceled by turning OFF/ON the power. Check connector and harness in the communication line.
EE	EL	Content	Auto developer adjustment trouble (Over-toner)
		Detail	The toner concentration output is detected as 1.5V or below in the auto development adjustment.
		Cause	Toner concentration sensor trouble Charging voltage, developing voltage abnormality Insufficient toner concentration Developing unit trouble PCU PWB trouble
		Check and remedy	Use SIM25-2 to perform auto developer adjustment.

MAIN	SUB	Details	
EE	EU	Content	Auto developer adjustment trouble (Under-toner)
		Detail	The toner concentration output is detected as 3.5V or above in the auto development adjustment.
		Cause	Insufficient toner concentration Charging voltage, developing voltage abnormality Insufficient toner concentration Developing unit trouble PCU PWB trouble
		Check and remedy	Use SIM25-2 to perform auto developer adjustment.
PF	00	Content	RIC copy inhibit signal is received.
		Detail	Copy inhibit command from RIM (host) is received.
		Cause	Judged by the host.
		Check and remedy	Inform to the host.

4. Other related items

(1) Self diag operation

The machine always monitors its own status. When it detects any abnormality or a status which requires warning, it performs the self diag operation to display the trouble or warning message as follows:

Warning	Content	This message is displayed to warn mainly the user to inform that a consumable part is near life, etc. It is no direct relation with machine troubles.
	Machine operation	The machine operation may be stopped and may be not.
	Message clear	The message may be automatically cleared by replacement or supply of the consumable part, or may be cleared by the specified simulation operation.
Trouble	Content	This message is a trouble message related to a machine trouble.
	Machine operation	The machine operation is stopped.
	Message clear	This message may be automatically cleared by repairing the trouble, or may be cleared by the specified simulation operation.

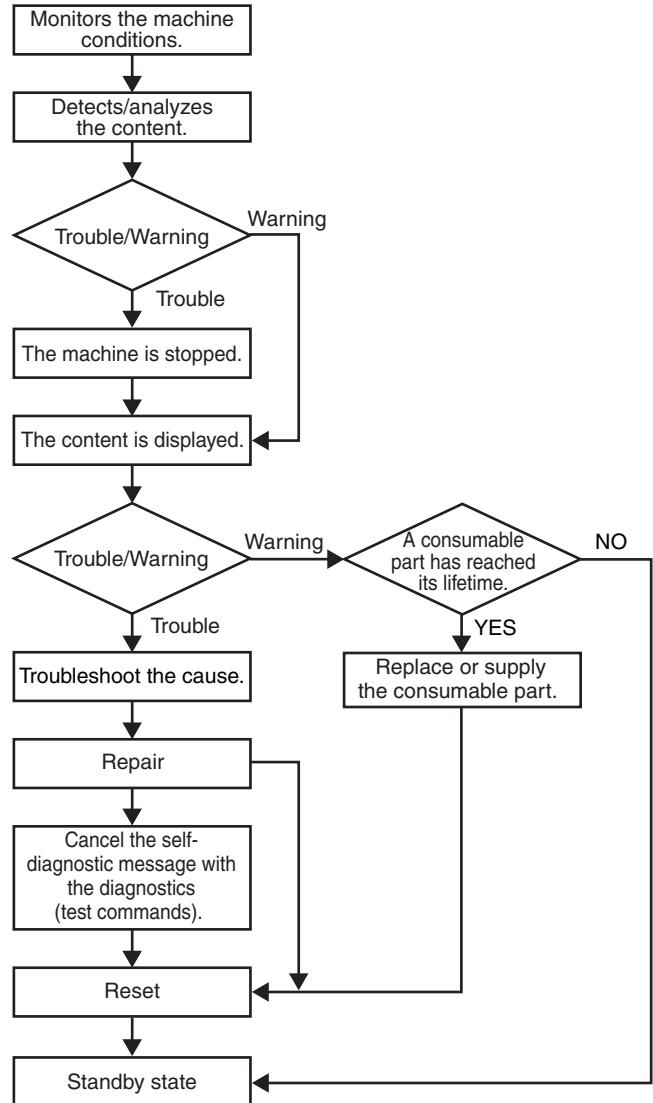
(2) Power ON trouble detection function

- When the power is turned on, if the stored trouble is H3, H4, H5, U1, U2, PF, or U6 (sub code 2, 3), it is immediately judged as a trouble.

* E7-50 and 60 are not judged as a storing trouble, (Detected every time when the power is turned on.)

Trouble code	Storing	Trouble cancel command simulation
H3, H4, H5	PCU	SIM 14
U1	ICU	SIM 13
U2	Each block	SIM 16
PF	ICU	SIM 17
U6-2, 3	PCU	SIM 15

(3) Basic flow of countermeasures



(4) List of trouble modes

● Troubles where the machine can be operated under some conditions

When a trouble occurs, the dialogue is displayed and OK button is added to the trouble message.

Trouble content	Judgment block	Trouble code	Operation enable mode						
			Copy read (including interrupt)	FAX send	Email receive	FAX print	Print	List print	Notification to FASThost
Scanner section breakdowns (Mirror motor, lens, copy lamp)	Scanner	L1, L3, U2 (80, 81)	×	×	×	○	○	○	○
FAX board breakdown	ICU/FAX	F6, F7	○	×	○	×	○	○	×
FAX power OFF	ICU		○	×	○	×	○	○	×
Network error	ICU	CE	○	○	×	○	○	○	×
Staple breakdown	PCU	F1 (10)	Δ2	○	○	Δ2	Δ2	Δ2	○
Paper feed tray breakdown	PCU	F3, U6 (LCC)	Δ3	○	○	Δ3	Δ3	Δ3	○
PCU section breakdowns (Motor, fusing section, etc.)	PCU	C1, C2, C3, H2, H3, H4, H5, L4 (excluding L4-30), L8, U2 (90, 91), F2	×	○	○	×	×	×	○
After-process breakdown	PCU	F1	Δ5	○	○	Δ5	Δ5	Δ5	○
Laser breakdown	PCU	E7 (02 only), L6	×	○	○	×	×	×	○
HDD breakdown	ICU	E7 (03)	×	×	×	×	×	×	○
CCD breakdowns (Shading, etc.)	Scanner	E7 (10, 11, 14)	×	×	×	○	○	○	○
CIS breakdowns (Shading, etc.)	Scanner	E6 (10, 11, 14)	Δ6	Δ6	Δ6	○	○	○	○
Scanner communication trouble	ICU	E7 (80)	×	×	×	○	○	○	○
PCU communication trouble	ICU	E7 (90)	×	×	×	×	×	×	○
FAX backup battery voltage fall	ICU	U1 (01, 02)	○	×	×	○	○	○	○
HDD registration data sum error	ICU	U2 (50)	○	×	×	○	○	○	○
Thermistor trouble (trouble history)	PCU	F2 (39, 58)	○	○	○	○	○	○	○

● Troubles where the machine cannot be operated

When a trouble occurs, the dialogue is displayed. OK button is not added to the trouble message, and only setting can be performed. The message remains displayed until the trouble is canceled.

Trouble content	Judgment block	Trouble code	Operation enable mode						
			Copy read (including interrupt)	FAX send	Email receive	FAX print	Print	List print	Notification to FASThost
Memory	ICU	U2 (00, 11, 12, 22, 23)	×	×	×	×	×	×	○
External communication disable (RICA)	ICU	U7, PF	×	×	×	×	×	×	○
Image memory trouble, decode error	ICU	E7 (01, 06)	×	×	×	×	×	×	○
Skating check error	ICU/PCU	E7 (50, 60)	×	×	×	×	×	×	×
Controller fan motor trouble	ICU	L4-30	×	×	×	×	×	×	×

* For FAX communication, refer to the “(5) Communication specification when a trouble occurs.”

* The machine may be operated under some conditions.

Δ1: When detected except when in a job, the machine can be operated in the OC mode.

Δ2: Can be operated except in the staple mode.

Δ3: When detected except in a job, the machine can be operated except with the breakdown tray.

Δ4: Can be operated with some restriction on the image quality depending on the destination. (Low density print)

Δ5: When detected except in a job, can be operated except in the trouble paper exit section.

Δ6: When detected except in a job, can be operated in the single surface scan mode.

(5) Communication specification when a trouble occurs

The image send/receive specifications when a trouble occurs are as shown below.

Trouble	Send reservation	Print	FAX call request	FAX call-in	LAN send	LAN receive	Precaution
PCU breakdowns (Excluding C1, C2, C3, H2, H3, H4, H5, L4, L8, U2-90, U2-91, and skating check error)	○	×	○	○ Note	○	○ Note	There is a risk that the memory is full.
Scanner breakdowns (L1, L3, U2-80, U2-81)	×	○	○	○	○	○	
F6, F7 (FAX breakdown)	×	○	×	×	○	○	
F1 (Paper exit section breakdown)	○	△4	○	○	○	○	
F3, U6 (Paper feed tray breakdown)	○	△2	○	○	○	○	
E7 (01, 06) (ICU breakdown)	×	×	×	×	○	○	
E7-02 (Laser breakdown)	○	×	○	○ Note	×	○ Note	There is a risk that the memory is full.
E7-03 (HD breakdown)	×	×	×	×	×	×	
E7 (10, 11, 14) (CCD breakdown)	×	○	○	○	○	○	
E6 (10, 11, 14) (CIS breakdown)	△6	○	○	○	○	○	
E7-80 (Scanner communication trouble)	×	○	○	○	○	○	
E7-90 (PCU communication trouble)	×	×	×	×	×	×	
E7 (50, 60) (Skating check error)	×	×	×	×	×	×	
U2 (00, 11, 12, 22) (ICU memory error)	×	×	×	×	×	×	
U2 (22, 23) (SRAM check sum error)	×	×	×	×	×	×	
U2-50 (HD check sum error)	×	×	×	×	×	×	
U7 (RIC external communication disable), PF	×	×	×	×	×	×	Inhibition of use by a customer having outstanding fee
U1 (Backup battery voltage fall)	×	△3	×	×	×	×	Transfer enable
L4-30 (Controller fan motor trouble)	×	×	×	×	×	×	
Door open	○	×	○	○ Note	○	○ Note	There is a risk that the memory is full.
Toner empty	○	×	○	○ Note	○	○ Note	There is a risk that the memory is full.
Process cartridge uninstalled, etc.	○	×	○	○ Note	○	○ Note	There is a risk that the memory is full.
Paper empty	○	×	○	○ Note	○	○ Note	There is a risk that the memory is full.
Paper JAM	○	×	○	○ Note	○	○ Note	There is a risk that the memory is full.
Document JAM	×	○	○	○	○	○	
Simulation	×	×	×	×	×	×	
Key operation (Communication disable)	×	×	×	×	×	×	

△2: Enable except for the trouble tray

* When, however, a paper feed tray trouble is detected during a job, the engine is stopped and printing is disabled.

△3: The display goes to the FAX status check menu and the list can be printed.: The received document is outputted.

△4: Paper exit is enabled except for the trouble paper exit tray

* When, however, a paper feed tray trouble is detected during a job, the engine is stopped and printing is disabled.

△5: Only the operation related to image quality can be executed depending on the destination. (low density print)

△6: The operation can be executed in the single surface scanning mode.

(6) Writing to the trouble memory

In case of a same trouble in this machine, selection is made with the simulation to write into the trouble memory or not. If this simulation is set, any trouble is written into the trouble memory unconditionally.

(SIMULATION. 26-35)

0: A same trouble as the previous one is not written. (Default)

1: Any trouble is written into the trouble memory unconditionally.

[12] ROM VERSION-UP

1. General

A. Version-up target ROM's

The version-up target ROM's are listed in the table below.

The version-up procedures of the firmware of this machine is performed without disassembling the ROM from the machine. The new program files are collectively written into the ROM's. Some new programs can be written into an optional ROM.

If, however, the above procedure is failed by an accident such as power interruption during the version-up procedure, use the ROM copy socket on the MFP control PWB ROM to make version-up of each ROM individually.

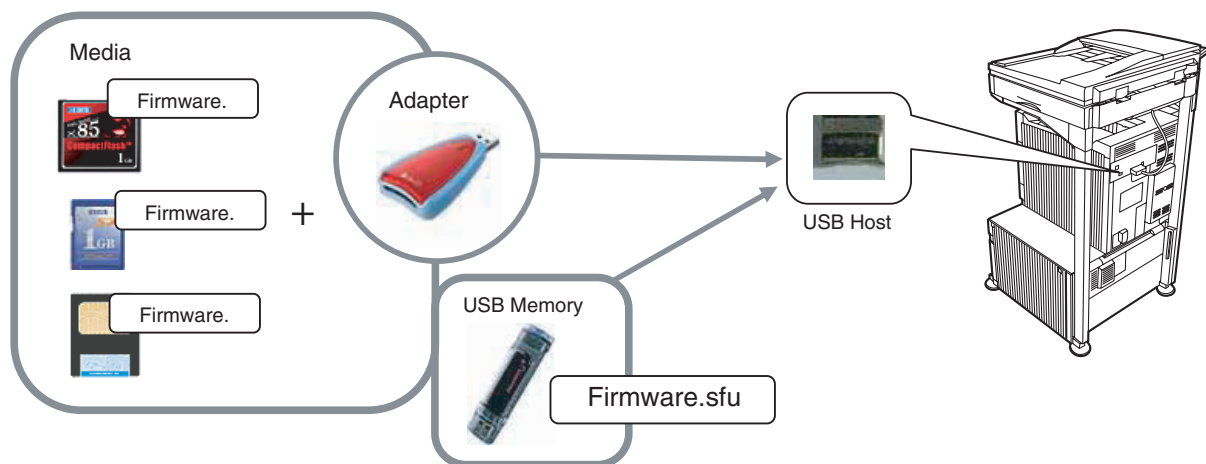
B. ROM version-up is required in the following cases:

ROM version-up is required in the following cases:

- 1) When improvement of performances is required.
- 2) When installing a new spare part ROM for repair to the machine.
- 3) When installing a new spare part PWB unit for repair with the ROM installed.
- 4) When there is a trouble in the ROM program and it must be repaired.

4. Flash ROM version-up method

A. Version-up procedure 1



(1) Firmware update from USB memory device

First you must install the firmware file (xxx.sfu) to the root of a USB jump drive.

- If the firmware is in a folder, Simulation 49-01 cannot open the folder.
 - Secure Jumpdrive will not work.
 - If the USB memory is not inserted, "INSERT A USB MEMORY DEVICE CONTAINING MFP FIRMWARE, PLEASE USE FAT (12/16) FORMAT" is displayed.
 - Non compliant to FAT32. If it's inserted, "CAN NOT SUPPORT FAT32. PLEASE USE FAT (12/16) FORMAT" is displayed.
- 1) Insert the USB memory device into the main unit.
 - 2) Enter the 49-01 screen. Touch the key of the file to be updated. The screen transfers to the update screen. (In this screen, [FILE 1] is selected)

2. Precautions

A. Relationship between each ROM and version-up

When performing ROM version-up, be sure to check the combination with the version of ROM installed in the other PWB's including optional ones.

Some combinations of ROM versions may not operate the machine properly.

3. Necessary items for Flash ROM version-up

- A machine with ROM to be operated
- A spare PCU PWB ROM, an MFP control PWB ROM (Boot, Program), a scanner control PWB ROM (Each of which is provided with the program to allow operations.) (Used when writing the program files into the ROM is failed.)
- A PC operating with either of a USB or Ethernet port.
- USB cable or Ethernet cable. (for connection of PC and MFP control PWB)
- File2PRN.exe file (A file transfer tool for Ethernet, and USB protocols)
- USB memory device (Supported format in FAT (12/16) only)
- Version-up program (compression) file

(The SFU file for writing a program to each ROM of the PCU PWB, the MFP control PWB (boot, program), and the scanner control PWB, or the SFU file for writing all the programs collectively.)

* The number of key changes depending on the number of the file in the USB memory device inserted.

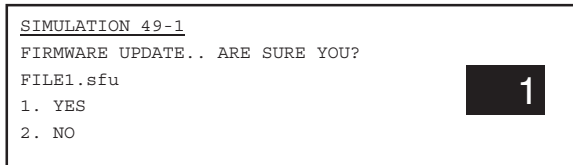
SIMULATION 49-1

```
FIRMWARE UPDATE.  
SELECT FIRMUP FILE, AND PRESS START.  
1. FILE1.sfu  
2. FILE2.sfu  
3. FILE3.sfu  
.  
19. >>NEXT Page
```

0

- 3) Enter the file/folder number of firmware that tries to be updated with 10-key, and press [START] key.

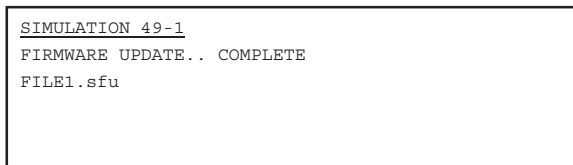
If selecting the file, "FIRMWARE UPDATE.. ARE YOU SURE ?" is displayed. ([1]: execute, [2]: get back)



- 4) If the operation is normally completed, "COMPLETE" is displayed. When the error occurs, "ERROR" is displayed.

NOTE:

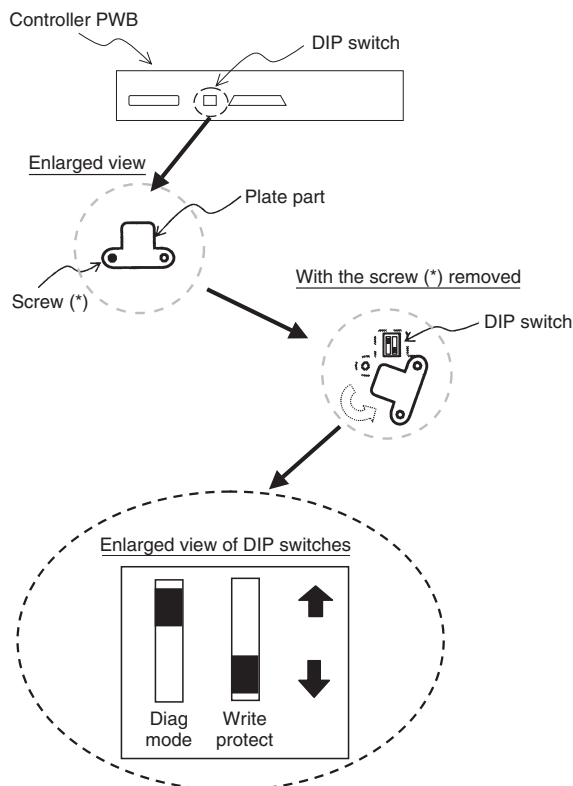
If the Imager locks up or loses power during the upgrade, it corrupt the firmware. If this occurs, you can rescue the firm-ware using the "C. Version-up procedure 3".



B. Version-up procedure 2

NOTE 1: MFP control PWB ROM DIP switch selection and Flash ROM slot

To make version-up of the ROM, position of the DIP switch should be below.



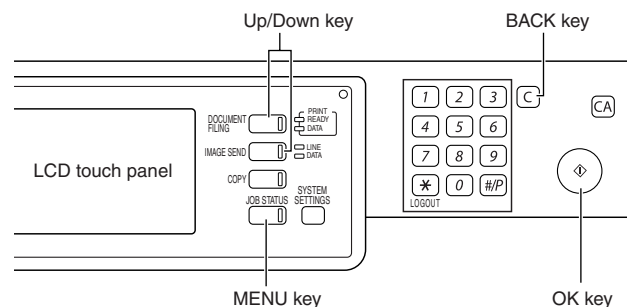
Switch	Diag mode	Write protect
↑	Normal mode (Version-up procedure 1)	Write protect mode
↓	Diag mode (Version-up procedure 2) (Version-up procedure 3)	Write protect cancel mode

When shipping, the setting of controller write protect bit is cancel mode side.

NOTE 2: Operation panel

When entering the diag mode to write into ROM, some keys on the operation panel and the LED panel are used. Necessary information including menu items and messages is displayed on the LCD panel.

[START] key is used as [OK] key, [DOCUMENT FILING] key and [FAX/IMAGE SEND] key as up/down select keys, [JOB STATUS] key as [MENU] key, and [CLEAR] key as [BACK] key.



- 1) When performing version-up of the firmware by using the file transfer tool (File1PRN), the printer driver of the target model must be installed in advance.
- 2) When performing version-up of the firmware by using the USB I/F, take note of the following items.

Since the port for the file transfer tool (File2PRN) differs from the port for the print mode, if the port for the print mode has been already made, be careful not to mistake them. If the USB port for the print mode has been made, it is advisable to delete it in order to avoid confusion.

(Making procedures of the port for the file transfer tool (File2PRN) in the USB I/F mode)

When performing version-up of the firmware by using the USB I/F, perform the following procedures to make the port in advance.

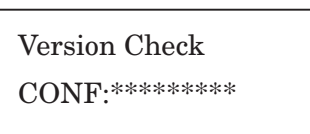
- 1) Install the printer driver of the target model.
In this case, set the port to other than the USB mode.
- 2) Set the DIP switch to the Flash ROM version-up mode, and turn on the power.
- 3) Connect the PC and the main unit with a USB cable.
- 4) The PC detects the new hardware by Plug & Play function.

When writing the program files collectively without disassembling the ROM's from the PWB's, and when writing the program files into an optional ROM:

NOTE: The PCU ROM, the FAX ROM, and the scanner control PWB ROM must be provided with the program to operate.

An empty ROM cannot be used.

- 1) Connect the PC and the MFP control PWB with a I/F cable.
- 2) Turn on the PC and the machine.
- 3) Copy the file transfer tool and ROM program file into the same folder of the PC. (When writing with the file transfer tool File2PRN.exe)
Copy the collective ROM programming file and the file transfer tool File2PRN.exe into the folder you desire on the PC.
- 4) The following display is shown after a while from starting the machine.



- 5) Press MENU key several time to select an I/F to use from USB, Ethernet.

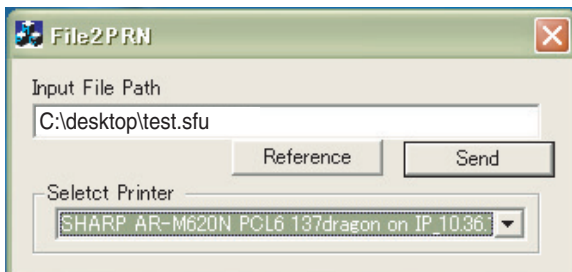
(Example)

Firm Update
From USB

- 6) Press OK key to display the following menu.

Firm Update
Waiting Data

- 7) Transfer the program data from PC to the machine via either of USB or Ethernet.
- 8) When transferring with the file transfer tool File2PRN.exe Start File2PRN.exe on the PC. Use this program to transfer the ROM program data from the PC to the main unit.
(Procedure)
 - a) Start File2PRN.exe.



- b) Click Reference button and select a ROM program to transfer.

Select the target machine's port form Select Printer pull down list.

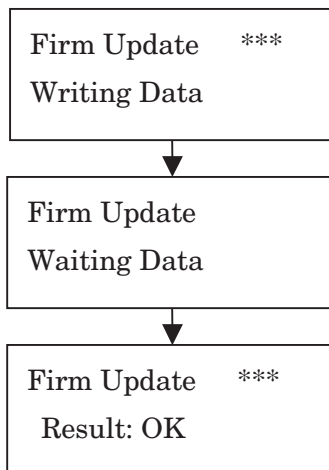
- c) Click Send button.

- d) The LED blinks and the LCD displays appropriate information as operation proceeds.

* When version-up of each ROM of the scanner control PWB is performed, the backlight of the display is turned off. This does not mean a trouble. Wait for a while.

- 9) When "Result: OK" is displayed after a few minutes, press Up/Down keys to check that there is no display of "Result: NG."

* When writing the program file data collectively to the machine without the FAX unit installed, "Result : NG" is displayed only to the FAX. This can be neglected.



- 10) Turn off the machine.

- 11) Turn on the machine, and use SIM 22-5 to check that each ROM version is properly upgraded.

C. Version-up procedure 3

As for the position of the DIP switch, refer to the B. Version-up procedure 2.

(MFP control PWB ROM slot)

The MFP control PWB ROM is provided with three Flash ROM slots: CN4, CN5, and CN6.

The boot ROM is installed to CN4, and the main ROM is installed to CN5. CN6 is an empty slot.

Use this empty slot of the MFP control PWB, CN6, to copy the ROM program.

When writing the program into each ROM of the PCU PWB, the FAX PWB, and the scanner control PWB individually by using an empty slot for ROM copy on the MFP control PWB ROM:

* The program write target ROM installed to the empty slot for ROM copy on the MFP control PWB ROM may be empty. (No need to have the program data in it. The empty ROM can be used.)

- 1) Install the write target ROM to the empty slot for ROM copy on the MFP control PWB ROM.
- 2) Connect the PC and the MFP control PWB with a I/F cable.
- 3) Turn on the PC and the machine.
- 4) Copy the file transfer tool and ROM program file into the same folder of the PC. (When writing with the file transfer tool File2PRN.exe)

Copy the collective ROM programming file and the file transfer tool File2PRN.exe into the folder you desire on the PC.

- 5) The following display is indicated after a while.

Version Check
CONF: *****

- 6) Press MENU key a few times to show the following display.

CN Update
From USB

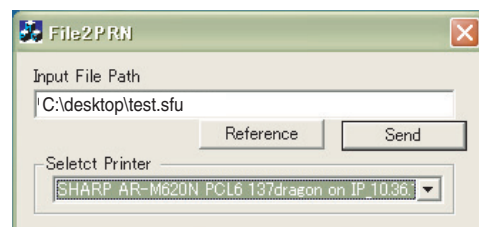
- 7) Press OK key to display the following menu.

CN Update
Waiting Data

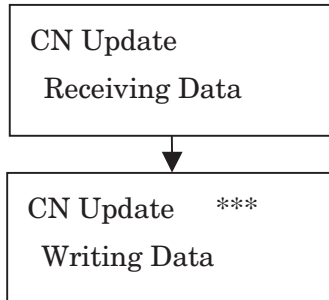
- 8) Transfer the program data from PC to the machine via either of USB or Ethernet.

- 9) When transferring with the file transfer tool File2PRN.exe Start File2PRN.exe on the PC. Use this program to transfer the ROM program data from the PC to the main unit.
(Procedure)

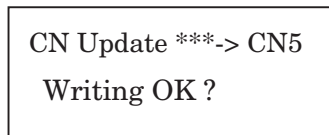
- a) Start File2PRN.exe.



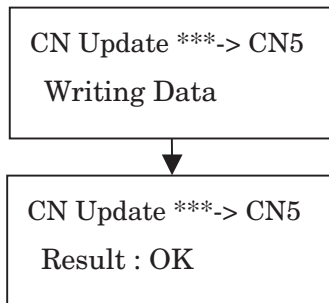
- b) Click Reference button and select a ROM program to transfer.
 - c) Select the target machine's port form Select Printer pull down list.
 - d) Click Send button.
 - e) The LED blinks and the LCD displays appropriate information as operation proceeds.
- 10) The LED stops flashing in a few minutes, and "Writing: OK" is displayed.



- 11) Press OK key, and the following display is shown.



- 12) "CN5" and the selection menu of slot numbers is displayed. Select "CN6" to which the target ROM is inserted to with Up/Down keys, and press OK key.
- 13) The LED flashes and the display is changed in the following sequence.
- When "Result: OK" is displayed in a few minutes, press Up/Down keys to check that there is no display of "Result: NG.".



- 14) Turn off the machine.
- 15) Remove the ROM from the empty slot CN6 for ROM copy on the MFP control PWB ROM.
- 16) Install the ROM with the revised version to the PWB.
- 17) Turn on the machine, and use SIM 22-5 to check that the ROM version is normally upgraded.

* Precautions on transferring a ROM program data with the file transfer tool File2PRN

For successful transferring a ROM program data with the file transfer tool File2PRN, the following conditions should be met:

- When transferring a ROM program data with the file transfer tool File2PRN, the destination machine must be configured as a printer.
- The PC must have an appropriate printer driver installed and configured with an I/F port to use.

D. Countermeasures against "Result: NG"

Factors of "Result: NG"

The following cases may be factors of "Result: NG."

- * The DIP switch for write protect is not set properly.
- * The FAX cable is not connected. (NG for FAX)
- * ROM defect (Very rare case)

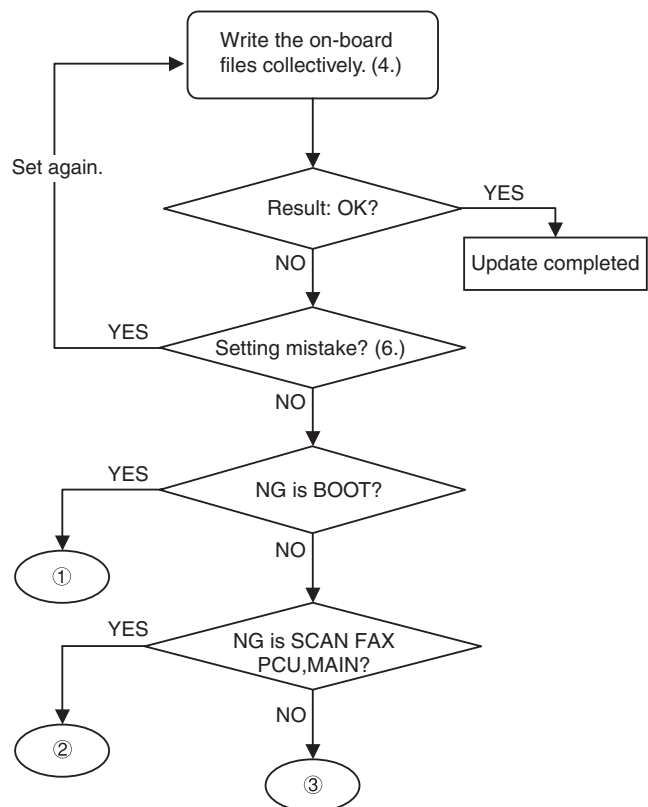
5. Turning OFF the power during the version-up procedure

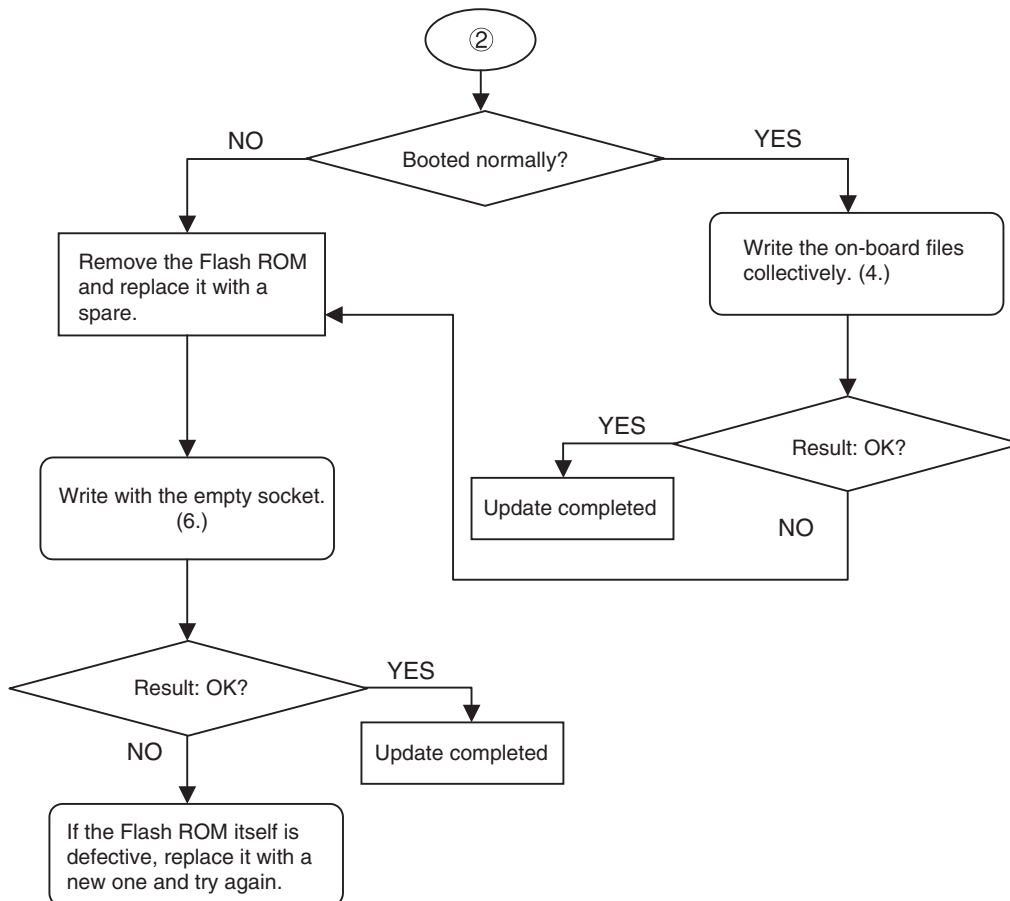
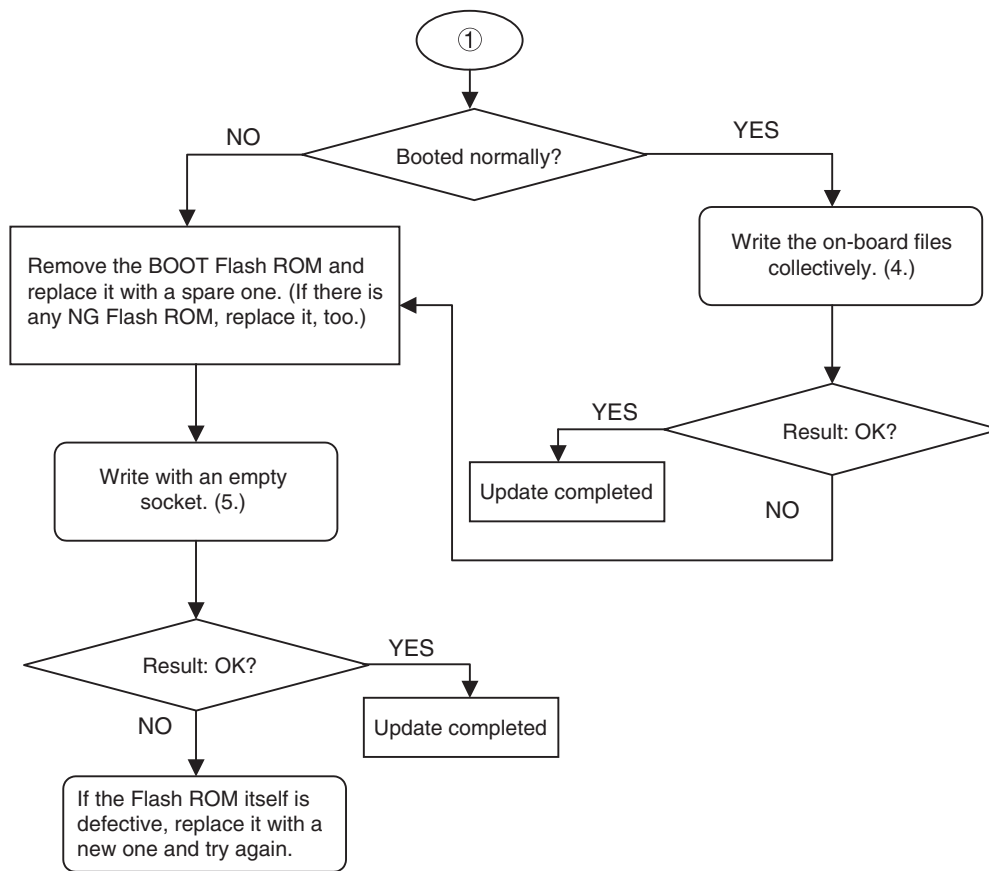
If the power is turned OFF during the version-up procedure, normal writing of data cannot be assured even though the machine can be booted again.

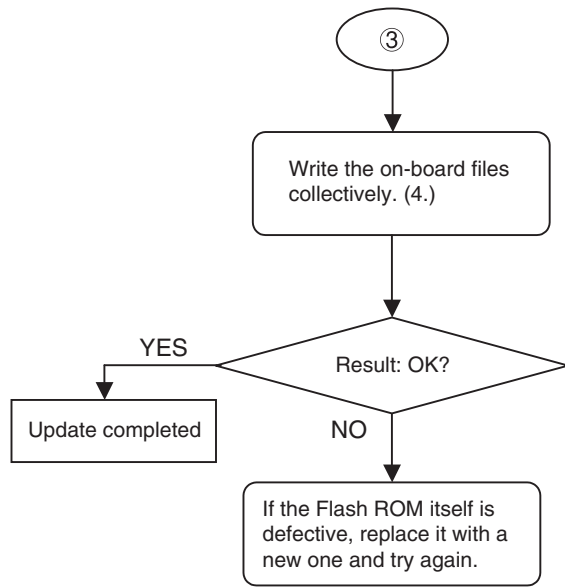
In such a case, use the spare PCU PWB ROM, the MFP control PWB ROM (BOOT, PROGRAM), and the scanner control PWB ROM each of which includes the program to be operated, and perform the version-up procedure again.

Replace with the spare PCU, the controller boot, the scanner control PWB ROM, and perform procedure "C. Version-up procedure 3" for the replaced ROM again to write data into it.

6. Version-up procedure flowchart



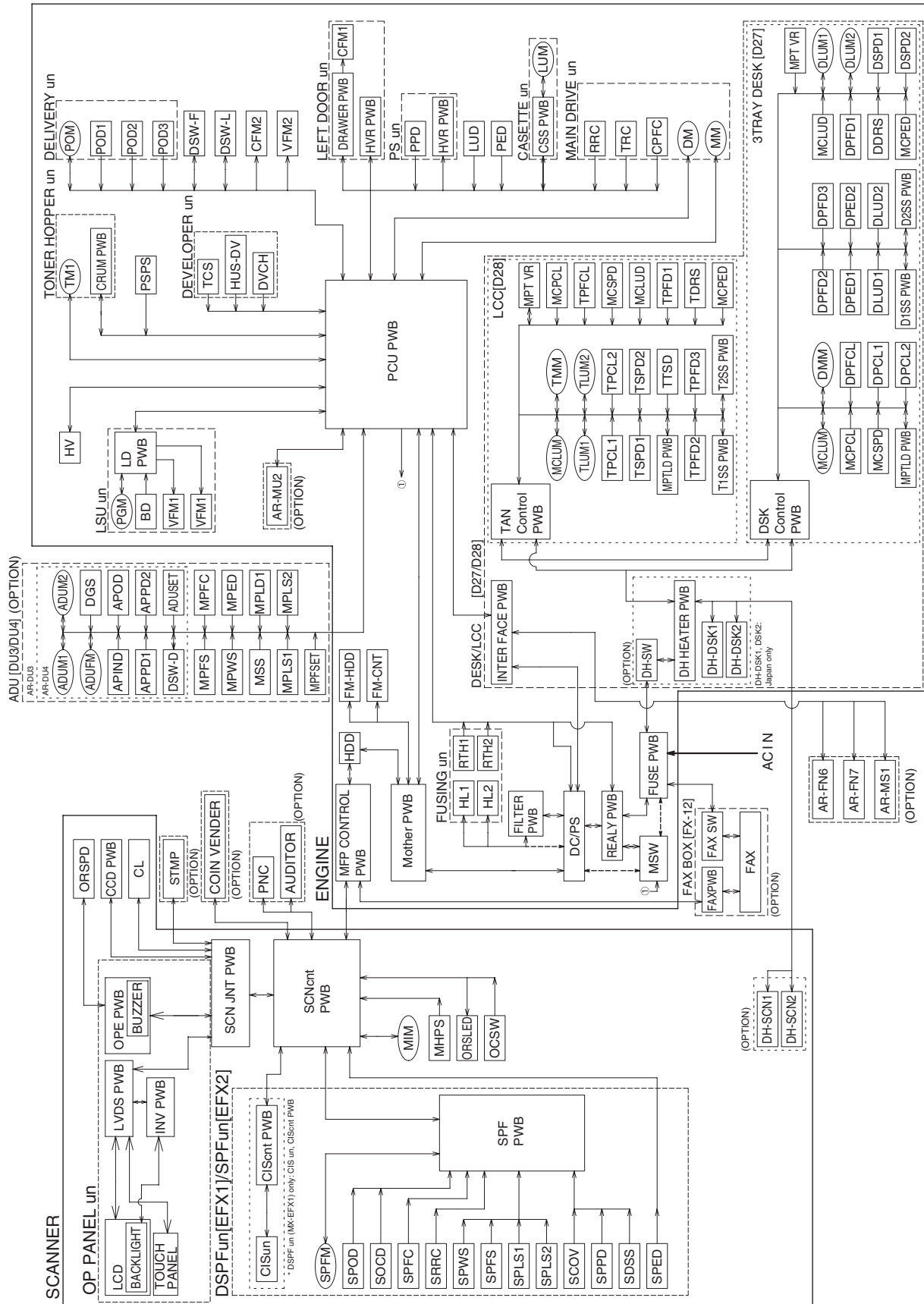




[13] ELECTRICAL SECTION

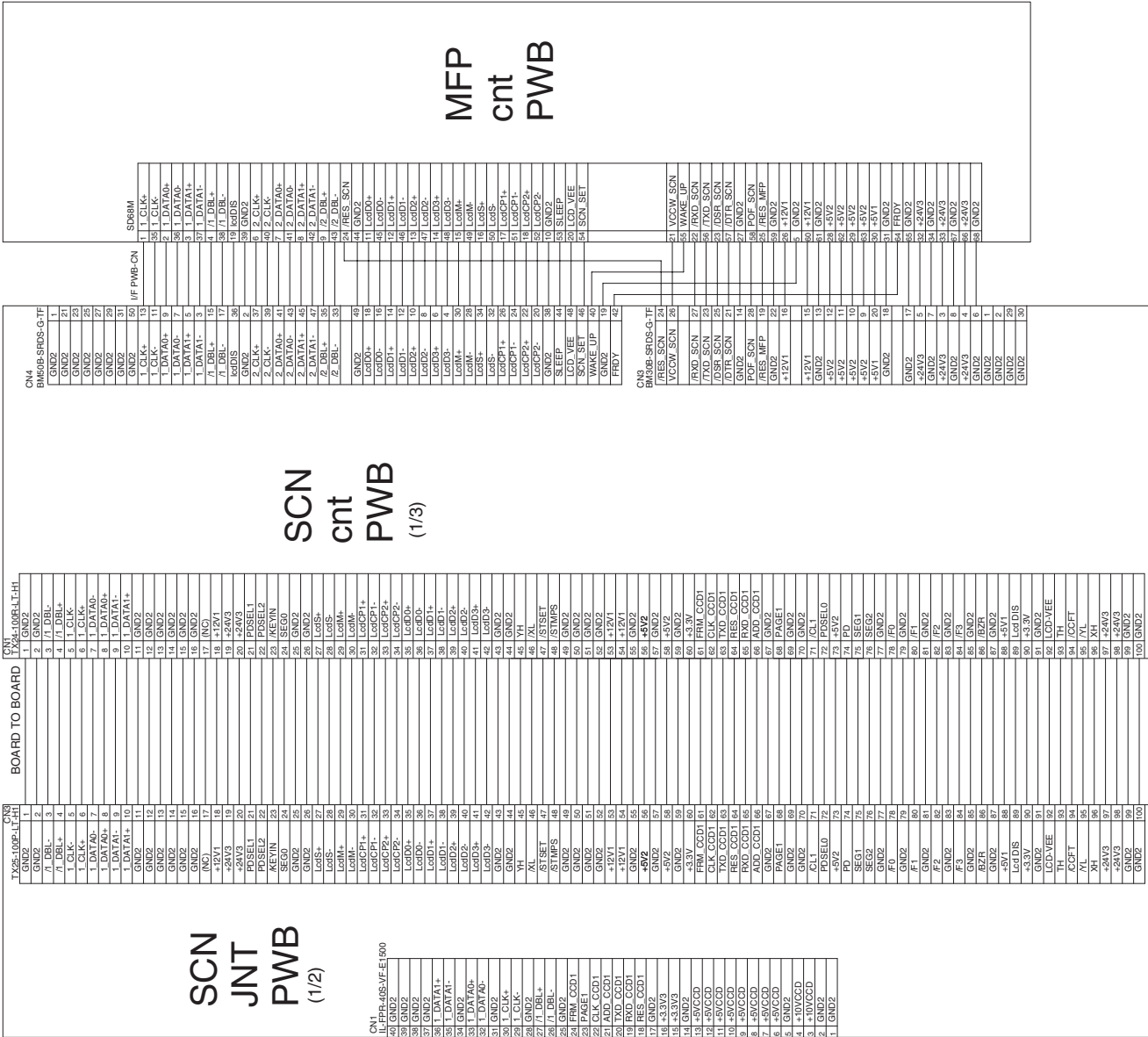
1. Block diagram

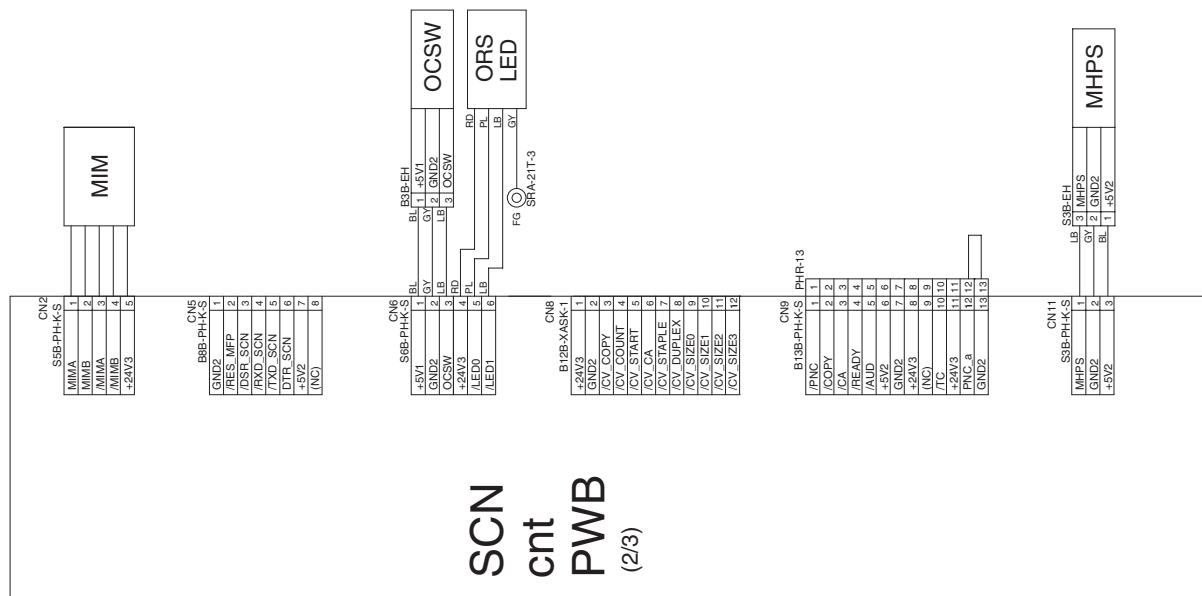
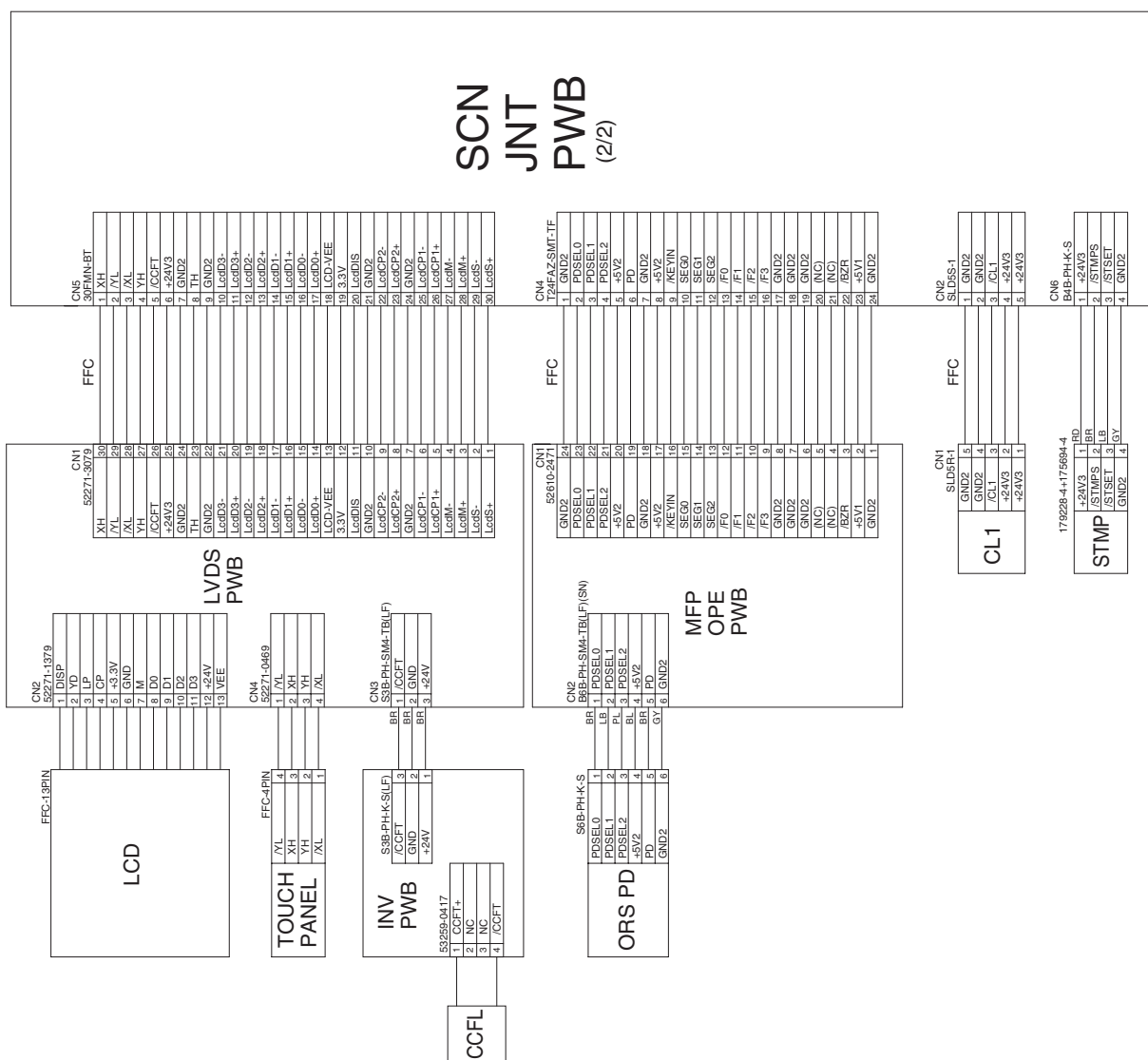
A. System block diagram

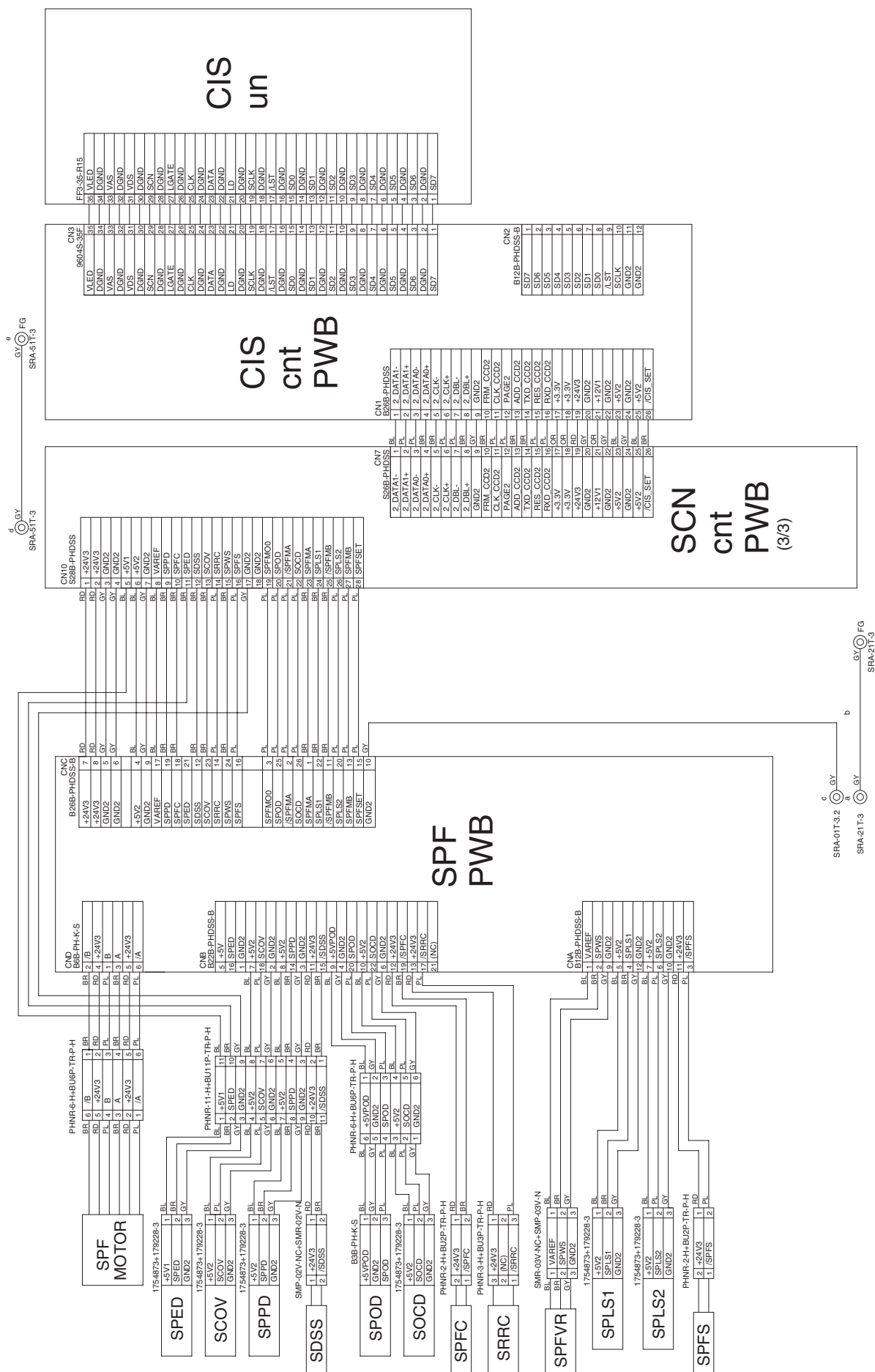


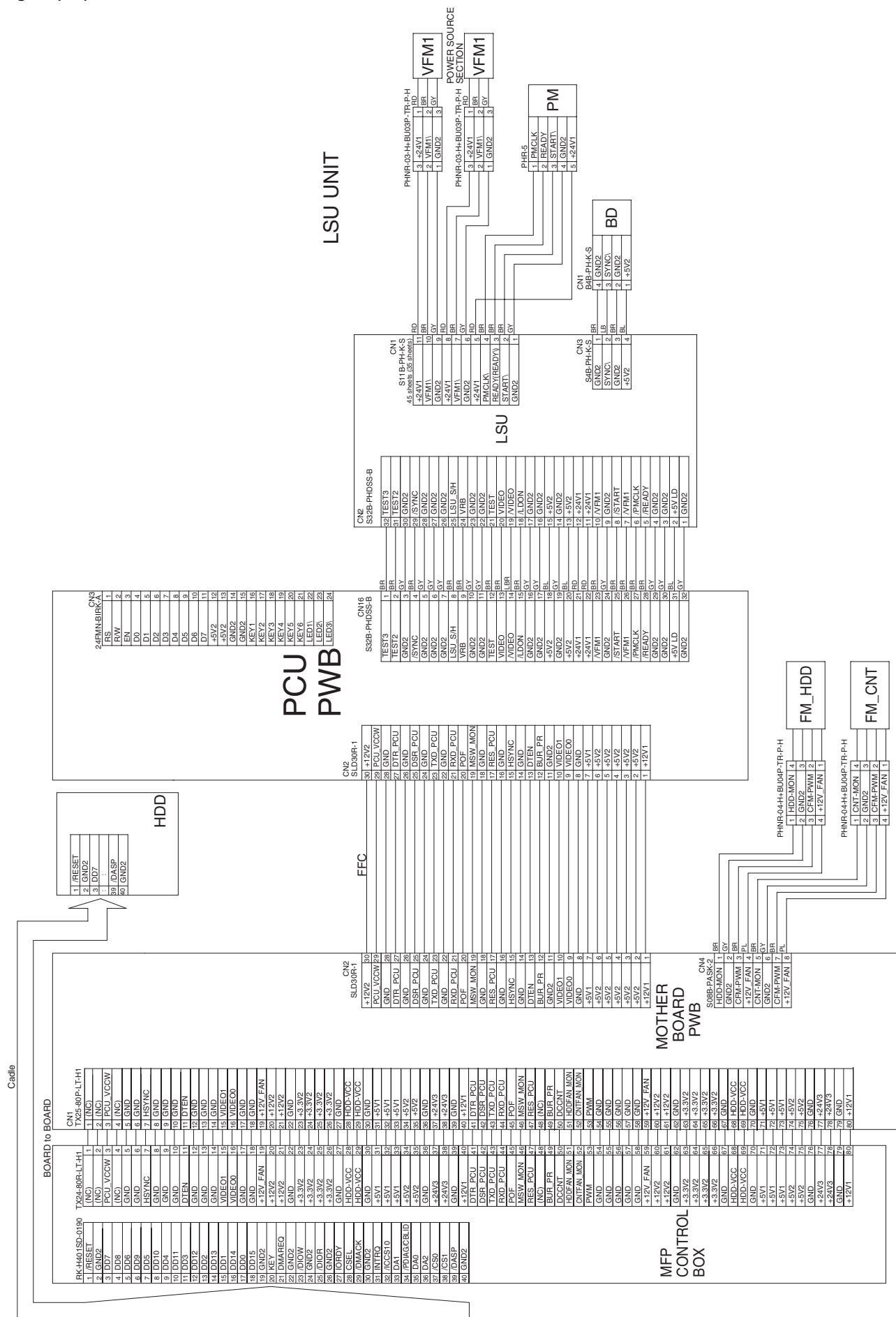
2. Actual wiring chart

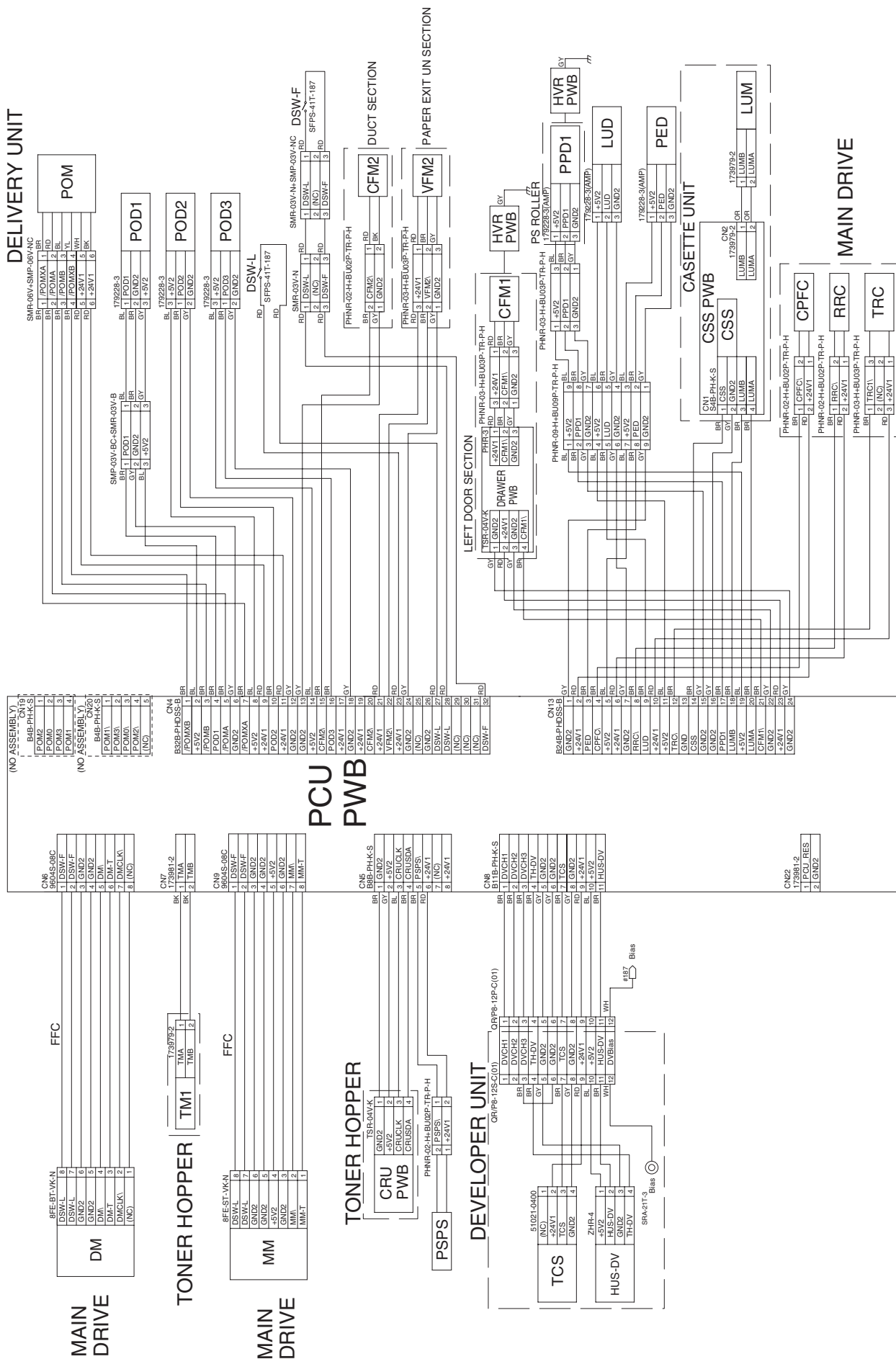
Scanner (1/3)



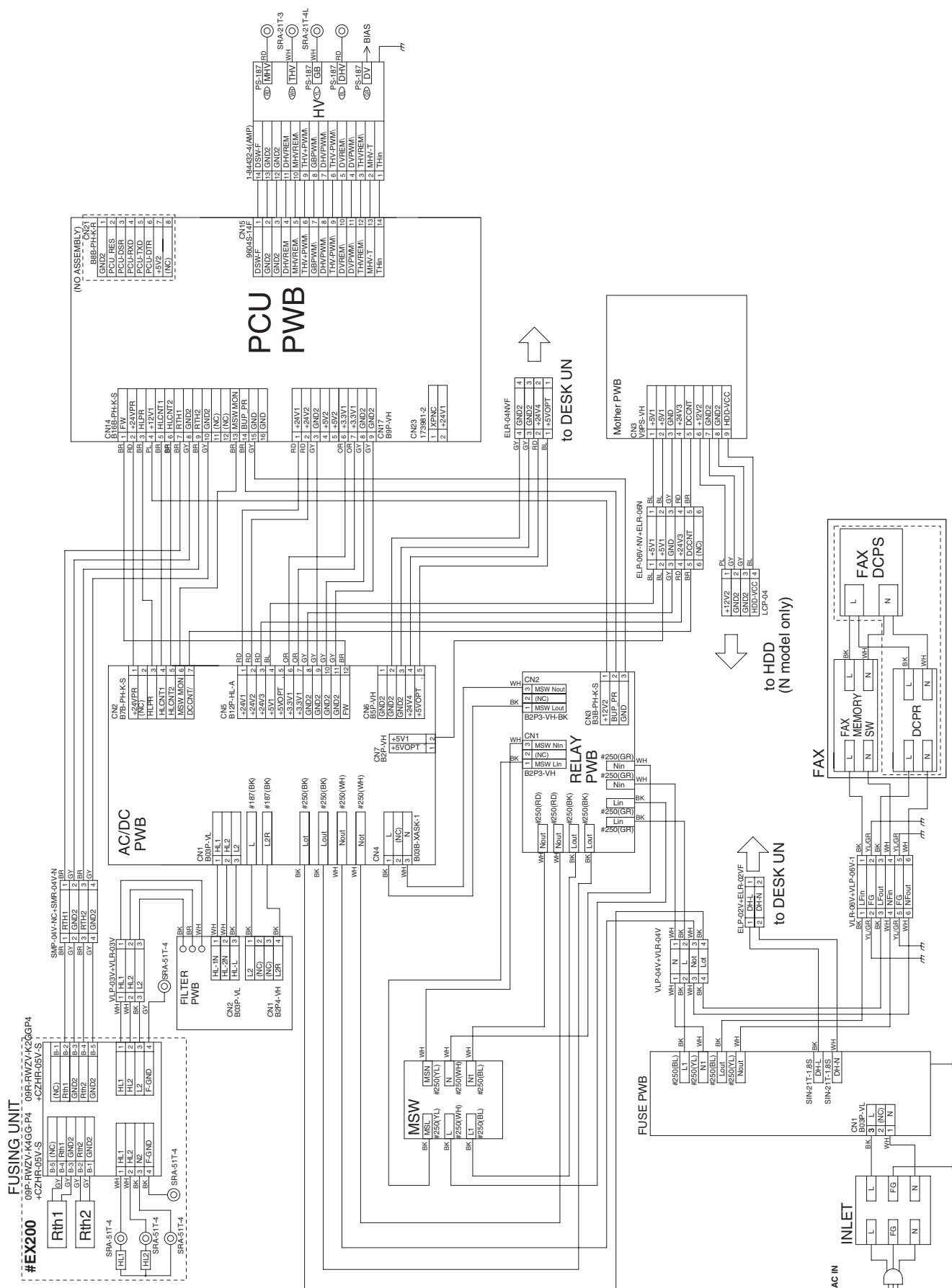














ADU ←

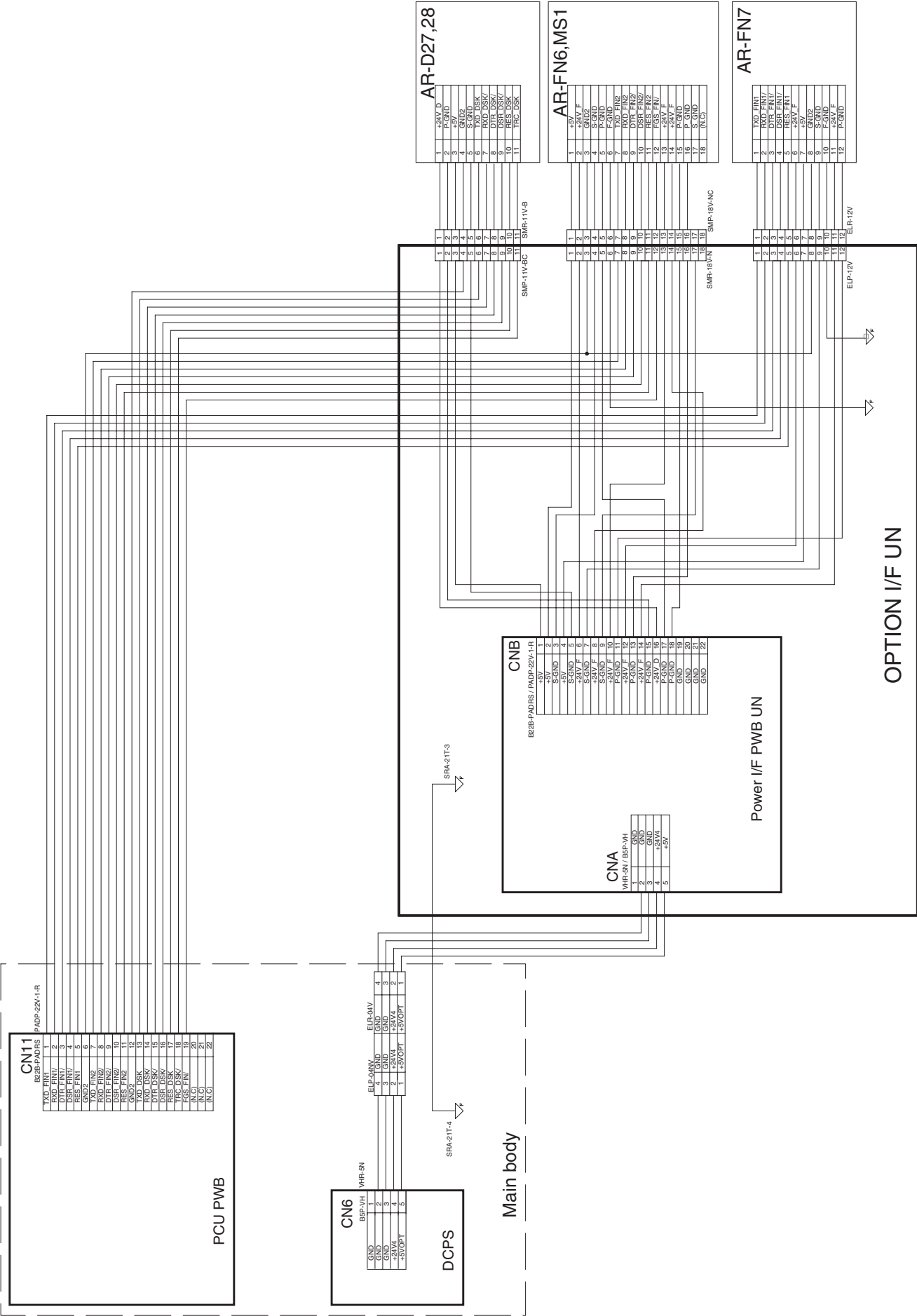
→ MULTICS

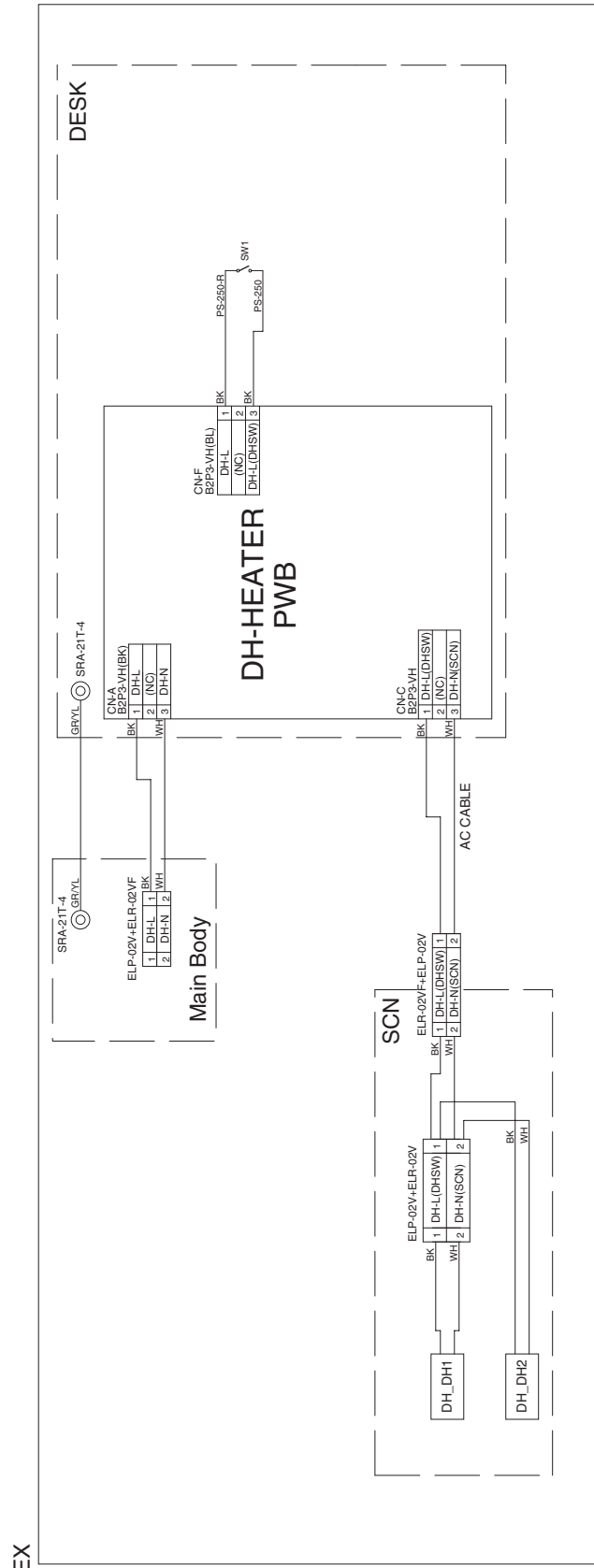
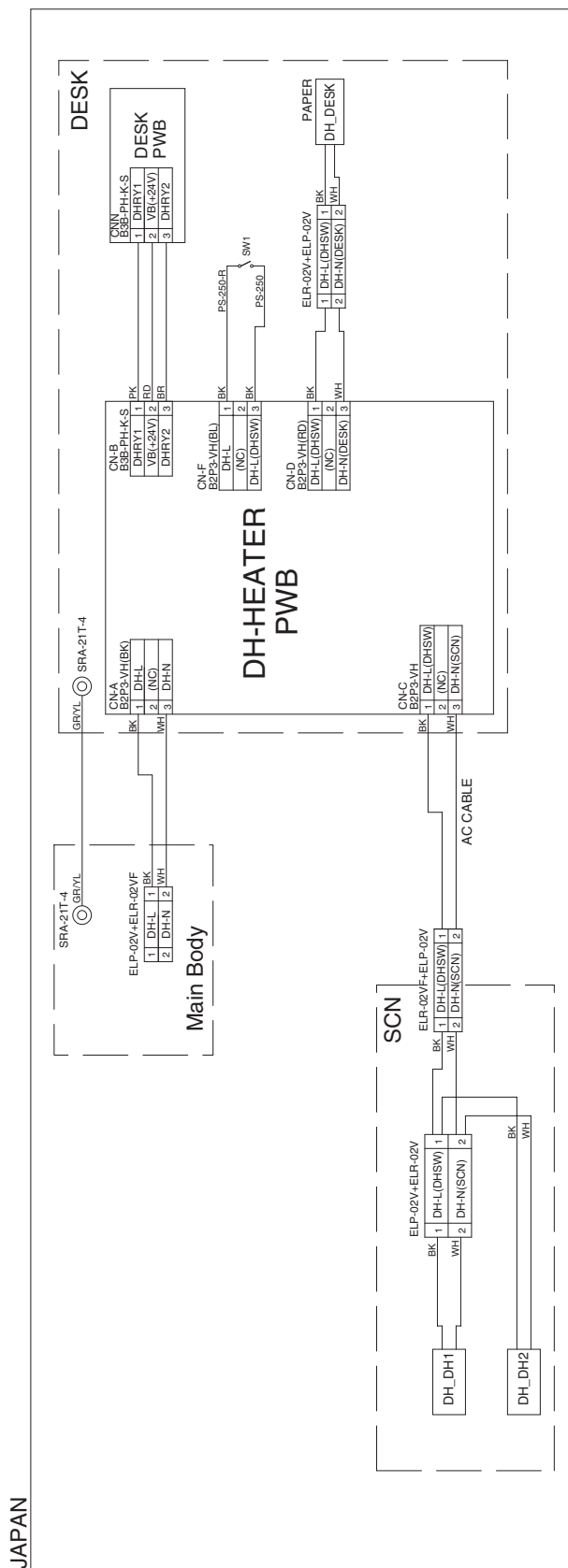
→ DESK

CN12		CN10	
B30B-PHDSS-B		B24B-PADES(BULE)	
1	VAREF	1	+5V2
2	+5V3	2	VAREF
3	+24V2	3	+24V2
4	+24V2	4	GND2
5	GND2	5	GND2
6	GND2	6	MCPPD
7	ADMEN1\	7	MCDRS
8	ADMCK1\	8	MCPED
9	ADMEN2\	9	MCLUD
10	ADMCK2\	10	MCPWS
11	MPFC\	11	MCSS1
12	MPFS\	12	MCSS2
13	DGS\	13	MCSS3
14	APID	14	MCSS4
15	APOD	15	MCSPD
16	APPD2	16	MC SET
17	APPD1	17	MCPC\
18	MPLD1	18	MCFCL\
19	MPED	19	MCLUM\
20	MPWS	20	MCM-T
21	DSW-D	21	MCMCLK\
22	ADU SET	22	MCM\
23	MPF SET	23	MCPFS\
24	MSS\	24	DCPR\
25	ADM H/L		
26	ADUFM\		
27	MPLS2		
28	MPLS1		
29	(NC)		
30	(NC)		

PCU
PWB

CN11	
B22B-PADRS(RED)	
1	TXD-FIN1
2	RXD-FIN1\
3	DTR-FIN1\
4	DSR-FIN1\
5	RES-FIN1
6	GND2
7	TXD-FIN2
8	RXD-FIN2\
9	DTR-FIN2\
10	DSR-FIN2\
11	RES-FIN2
12	GND2
13	TXD-DSK
14	RXD-DSK\
15	DTR-DSK\
16	DSR-DSK\
17	RES-DSK
18	TRC-DSK\
19	FGS-FIN\
20	FM1\
21	DCPR\
22	+24V2





3. Signal name list

Signal name	Name	Function/Operation	Connector level		Connector No.	Pin NO.	PWB name	Remark
			L	H				
+24V_PR	Power relay 24V	Power relay 24V	—	—	14	2	PCU	
+5VLD	5V power for laser diode	5V power for laser diode	—	—	16	31	PCU	
ADUSET	ADU detection signal	ADU detection	With ADU	Without ADU	12	22	PCU	
APIND	ADU paper entry sensor signal	ADU paper entry detection	Paper pass	—	12	14	PCU	
APOD	ADU paper exit sensor signal	Paper exit detection	Paper present		12	15	PCU	
APPD1	ADU paper transport sensor signal 1	ADU upper-stream section paper pass detection	Paper pass	—	12	17	PCU	
APPD2	ADU paper transport sensor signal 2	ADU lower-stream section paper pass detection	Paper pass	—	12	16	PCU	
BUP_PR	Power save mode relay signal	Changeover between the power save mode and the normal power mode	—	—	2 14	12 14	PCU	
CRUCLK	Communication CLK	CRUM communication CLK	—	—	5	3	PCU	
CRUSDA	Communication data/ address signal	CRUM communication data/address signal	—	—	5	4	PCU	
CSS	Paper tray insertion detection signal	Paper tray insertion detection	With tray	Without tray	13	14	PCU	
DMCLK	OPC drum motor rotating speed control (CLK) signal	OPC drum motor rotating speed control	—	—	6	7	PCU	
DM-T	OPC drum motor lock detection signal	OPC drum motor lock detection	Rotation	Stop/Lock	6	6	PCU	
DSR_PCU	Serial communication control signal	Send control signal (serial communication)	—	—	2	25	PCU	
DSW-D	ADU door sensor signal	Door open/close detection	Door open	Door close	12	21	PCU	
DSW-F	Front door open/close detection signal	Front door open/close detection	Front door open	Front door close	4 6 6 9 9 15	32 1 2 1 2 1		
DSW-L	Left door open/close detection signal	Left door open/close detection	Left door open	Left door close	4 4	27 28	PCU	
DTR_PCU	Control signal for serial communication	Receive control signal (Serial communication)	—	—	2	27	PCU	
DVCH1	DV unit identification signal 1	Installation acknowledgment	—	—	8	1	PCU	
DVCH2	DV unit identification signal 2	Installation acknowledgment	—	—	8	2	PCU	
DVCH3	DV unit identification signal 3	Installation acknowledgment	—	—	8	3	PCU	
FW	AC power full wave signal	Power monitor	—	—	14	1	PCU	
FWP-PCU	Flash write protect signal	Flash write protect	—	—	2	29	PCU	
GND2_Tnin	GND	GND			5	1	PCU	
HLCNT1	Fusing roller center section heater lamp control signal	Fusing roller center section heating control	OFF	ON	14	5	PCU	
HLCNT2	Fusing roller both sides heater lamp control signal	Fusing roller both sides heating control	OFF	ON	14	6	PCU	
HLPRout	Fusing heater lamp power relay control signal	Fusing heater lamp power relay control	Relay OFF	Relay ON	14	3	PCU	
HSYNC	Horizontal sync signal	Horizontal sync	—	—	2	15	PCU	
HUS-DV	Development humidity sensor	Humidity detection around the developing unit	—	—	8	11	PCU	
LSU_S/H	Laser beam horizontal sync signal	Laser beam horizontal position timing control	—	—	16	8	PCU	
LUD	Paper tray upper limit detection signal	Paper tray upper limit detection	—	Upper limit	13	9	PCU	
LUMA	Paper tray lift-up motor control signal	Paper tray lift-up control	Stop	Up	13	20	PCU	
LUMB	Paper tray lift-up motor control signal	Paper tray lift-up control	Stop	Up	13	18	PCU	

Signal name	Name	Function/Operation	Connector level		Connector No.	Pin NO.	PWB name	Remark
			L	H				
MCLUD	MP tray upper limit sensor signal	MP tray upper limit detection	—	Upper limit	10	9	PCU	
MCM_T	Multi-purpose paper feed tray transport motor lock signal	Multi-purpose paper feed tray transport motor lock detection	Rotation	Stop/Lock	10	20	PCU	
MCMCLK	Multi-purpose paper feed tray transport motor clock signal	Multi-purpose paper feed tray transport motor rotating speed control	—	—	10	21	PCU	
MCPED	MP tray paper empty sensor signal	MP tray paper empty detection	Paper present	—	10	8	PCU	
MCPWS	MP tray width sensor detection	MP tray paper width detection	—	—	10	10	PCU	
MCSET					10	16	PCU	
MCSPD	MP tray paper remaining quantity sensor signal	MP tray paper remaining quantity detection	When pressed	—	10	15	PCU	
MCSS1	MP tray rear edge sensor 1 signal	MP tray rear edge size detection	When pressed	—	10	11	PCU	
MCSS2	MP tray rear edge sensor 2 signal	MP tray rear edge size detection	When pressed	—	10	12	PCU	
MCSS3	MP tray rear edge sensor 3 signal	MP tray rear edge size detection	When pressed	—	10	13	PCU	
MCSS4	MP tray rear edge sensor 4 signal	MP tray rear edge size detection	When pressed	—	10	14	PCU	
MHV-T	Main charger trouble detection signal	Main charger trouble detection	Trouble/ Without MHV	Normal	15	13	PCU	
MM-T	Main motor lock detection signal	Main motor lock detection	Rotation	Stop/Lock	9	8	PCU	
MPED	ADU manual feed paper sensor signal	Manual feed tray paper empty detection	Paper present	—	12	19	PCU	
MPFSET	Manual feed unit detection signal	Manual feed unit detection	Provided	Not provided	12	23	PCU	
MPLD1	Manual feed paper length sensor signal	Manual paper feed tray paper length detection	—	Paper present	12	18	PCU	
MPLS1	ADU tray pull-out sensor signal	Manual feed extension tray pull-out detection	—	Pull out	12	28	PCU	
MPLS2	ADU tray storing sensor signal	Manual feed extension tray storing detection	—	Storing	12	27	PCU	
MPWS	ADU manual feed paper width detection signal	Manual feed paper width detection	—	—	12	20	PCU	
PAGE	Page signal	Print timing control to the controller (output for every page)	—	—	2	13	PCU	
PED	Paper tray empty sensor signal	Paper empty detection	—	Paper empty	13	3	PCU	
PMCLK	Polygon mirror motor drive clock signal	Polygon mirror motor drive clock	—	—	16	27	PCU	
POD1	Paper exit detection 1 signal	Detection of paper exit from the fusing section	Paper pass	—	4	4	PCU	
POD2	Paper exit detection 2 signal	Paper exit paper pass detection	Paper pass	—	4	10	PCU	
POD3	Paper exit detection 3 signal	Detection of paper exit to the upper section paper exit tray (Full detection)	Paper pass (Full detection)	—	4	16	PCU	
RES_DSK	Desk reset signal	Desk reset	Operation enable	Reset	11	17	PCU	
RES_FIN1	Finisher reset signal	Finisher reset	Operation enable	Reset	11	5	PCU	
RES_FIN2	Finisher reset signal	Finisher reset	Operation enable	Reset	11	11	PCU	
RES_PCU	PCU reset signal	The controller resets the PCU.	Operation enable	Reset	2	17	PCU	
RTH1	Fusing roller temperature detection signal	Fusing roller temperature detection (Center section)	—	—	14	7	PCU	
RTH2	Fusing roller temperature detection signal	Fusing roller temperature detection (Edge section)	—	—	14	9	PCU	

Signal name	Name	Function/Operation	Connector level		Connector No.	Pin NO.	PWB name	Remark
			L	H				
RXD_DSK	Serial I/F data (DESK)	Serial I/F data (DESK-PCU PWB)	—	—	11	14	PCU	
RXD_FIN1	Serial I/F data (FINISHER)	Serial I/F data (FINISHER-PCU PWB)	—	—	11	2	PCU	
RXD_FIN2	Serial I/F data (FINISHER)	Serial I/F data (FINISHER-PCU PWB)	—	—	11	8	PCU	
RXD_PCU	Serial communication send data signal	Send data to the controller	—	—	2	21	PCU	
TCS	Toner concentration detection signal	Toner concentration detection	—	—	8	7	PCU	
TH-DV	Developing temperature sensor	Temperature detection around the developing unit	—	—	8	4	PCU	
THVin	N.C.	N.C.	—	—	15	14		
TMA	Toner motor control signal	Toner motor ON/OFF control	—	—	7	1	PCU	
TMB	Toner motor control signal	Toner motor ON/OFF control	—	—	7	2	PCU	
TXD_DSK	Serial I/F data (DESK)	Serial I/F data (PCU PWB-DESK)	—	—	11	13	PCU	
TXD_FIN1	Serial I/F data (FINISHER)	Serial I/F data (PCU PWB - FINISHER)	—	—	11	1	PCU	
TXD_FIN2	Serial I/F data (FINISHER)	Serial I/F data (PCU PWB - FINISHER)	—	—	11	7	PCU	
TXD_PCU	Serial communication receive data signal	Receive data from the controller	—	—	2	23	PCU	
VIDEO	Image signal	Image signal to the LSU	—	—	16	13	PCU	
VIDEOin-	Image signal	Image signal from the controller to the PCU PWB	—	—	2	9	PCU	
VIDEOin+	Image signal	Image signal from the controller to the PCU PWB	—	—	2	10	PCU	
VRB	Laser power control signal	Laser power control	—	—	16	9	PCU	
XADM_H/L	ADU motor current control signal	ADU motor current control	—	—	12	25	PCU	
XADMCK1	ADU upper transport motor clock signal	ADU upper transport motor rotation speed control	—	—	12	8	PCU	
XADMCK2	ADU lower transport motor clock signal	ADU lower transport motor rotation speed control	—	—	12	10	PCU	
XADMEN1	ADU upper transport motor control signal	ADU upper transport motor ON/OFF control	ON	OFF	12	7	PCU	
XADMEN2	ADU lower transport motor control signal	ADU lower transport motor ON/OFF control	ON	OFF	12	9	PCU	
XADUFM	ADU cooling fan control signal	Cooling fan control	ON	OFF	12	26	PCU	
XCFM1_PWM	Suction fan control signal	Suction fan control	Max. air flow	OFF	13	21	PCU	
XCFM2PWM	Ozone exhaust fan control signal	Ozone exhaust fan control	OFF	ON	4 4	15 20	PCU	
XCPFC	Paper cassette paper feed clutch control signal	Paper feed clutch control	Paper transport	—	13	4	PCU	
XDGS	ADU gate solenoid control signal	Gate select in duplex or paper exit	Duplex	Single	12	13	PCU	
XDHVPWM	Separation high voltage output control signal	Separation high voltage PWM control	—	—	15	7	PCU	
XDHVREM	Separation high voltage control signal	Separation high voltage ON/OFF control	ON	OFF	15	4	PCU	
XDM	OPC drum motor control signal (ON/OFF)	OPC drum motor ON/OFF	ON	OFF	6	5	PCU	
XDSR_DSK	Serial communication control signal	Receive control	—	—	11	16	PCU	
XDSR_FIN1	Serial communication control signal	Receive control	—	—	11	4	PCU	
XDSR_FIN2	Serial communication control signal	Receive control	—	—	11	10	PCU	
XDTR_DSK	Serial communication control signal	Send control	—	—	11	15	PCU	

Signal name	Name	Function/Operation	Connector level		Connector No.	Pin NO.	PWB name	Remark
			L	H				
XDTR_FIN1	Serial communication control signal	Send control	—	—	11	3	PCU	
XDTR_FIN2	Serial communication control signal	Send control	—	—	11	9	PCU	
XDVPWM	Developing bias voltage control signal (PWM)	Developing bias PWM control	—	—	15	11	PCU	
XDVREM	Developing bias control (ON/OFF) signal	Developing bias ON/OFF	ON	OFF	15	10	PCU	
XFGS_FIN	Finisher gate solenoid control signal	Finisher gate solenoid control	—	—	11	19	PCU	
XFM1	Fan	Fan	—	—	11	20	PCU	
XGBPWM	Main charger grid bias voltage (PWM) control signal	Main charger grid bias voltage (PWM) control	—	—	15	8	PCU	
XLDON	Laser ON/OFF control signal	Laser ON/OFF control	ON	OFF	16	15	PCU	
XMCDRS	MP door open/close sensor signal	MP left door open/close detection	—	Door close	10	7	PCU	
XMCFCL	Multi-purpose paper feed tray transport clutch	Clutch for transport from the MP tray	Paper transport	—	10	18	PCU	
XMCLUM	Multi-purpose paper feed tray lift-up motor	MP tray lift up	Up	Stop	10	19	PCU	
XMCM	Multi-purpose paper feed tray transport motor control signal	Multi-purpose paper feed tray transport motor ON/OFF control	ON	OFF	10	22	PCU	
XMCPCL	Multi-purpose paper feed clutch	Clutch for paper feed from the MP tray			10	17	PCU	
XMCPPD	MP transport sensor signal	Paper detection on the path	Paper detection	—	10	6	PCU	
XMHVREM	Main charger control signal	Main charger ON/OFF	ON	OFF	15	5	PCU	
XMM	Main motor control signal	Main motor ON/OFF control	ON	OFF	9	7	PCU	
XMPFC	ADU manual feed paper feed clutch control signal	Clutch for paper feed from the manual paper feed tray	Paper feed	—	12	11	PCU	
XMPFS	ADU manual feed paper feed solenoid control signal	Solenoid for paper feed from the manual paper feed tray	Paper feed	—	12	12	PCU	
XMSS	ADU shutter solenoid control signal	Shutter open/close control in manual paper feed	Paper feed	—	12	24	PCU	
XMSWMON	MSW monitor signal	Main switch monitor	—	—	14	13	PCU	
XMSWOFF	MSW OFF signal	Main switch OFF signal	—	—	2	19	PCU	
XMSWPR	Main switch power relay control signal	Main switch power relay control	Relay ON	Relay OFF	14	12	PCU	
XPNC	Mechanism counter	Mechanism counter	—	—	23	1	PCU	
XPOF	Power OFF status signal	Power OFF status	Power OFF	Power ON	2	20	PCU	
XPOMA	Paper exit motor control signal (Phase A)	Paper exit unit paper transport	—	—	4	5	PCU	
XPOMB	Paper exit motor control signal (Phase B)	Paper exit unit paper transport	—	—	4	3	PCU	
XPOMXA	Paper exit motor control signal (Phase /A)	Paper exit unit paper transport	—	—	4	7	PCU	
XPOMXB	Paper exit motor control signal (Phase /B)	Paper exit unit paper transport	—	—	4	1	PCU	
XPPD1	Resist roller front paper pass detection signal	Detection of paper pass in front of the resist roller	Paper pass	—	13	17	PCU	
XSPSPS	Separation solenoid control signal	Separation solenoid control	Separation	—	5	5	PCU	
XREADY	LSU motor READY signal	LSU motor READY detection	—	—	16	28	PCU	
XRRRC	Resist roller clutch control signal	Resist roller clutch ON/OFF control	Paper transport	—	13	8	PCU	
XRSVOUT2	Reserved	Reserved	—	—	5	7	PCU	
XSTART	Polygon mirror motor drive start signal	Polygon mirror motor control	ON	OFF	16	25	PCU	

Signal name	Name	Function/Operation	Connector level		Connector No.	Pin NO.	PWB name	Remark
			L	H				
XSYNC	LSU horizontal sync detection signal	LSU horizontal sync detection (BD sensor signal)	—	—	16	4	PCU	
XTHV+PWM	Transfer charger output control signal (THV+)	Transfer charger output control (PWM control)	—	—	15	6	PCU	
XTHV-PWM	Transfer charger output control signal (THV-)	Transfer charger output control (PWM control)	—	—	15	9	PCU	
XTHVREM	Transfer charger control signal (THV)	Transfer charger ON/OFF control	ON	OFF	15	12	PCU	
XTRC	Paper transport roller clutch control signal	Paper transport roller ON/OFF control	—	—	13	12	PCU	
XTRC_DSK	Paper transport timing signal	Paper transport timing	—	—	11	18	PCU	
XVFM1_PWM	Cooling fan control signal	Cooling fan control	Max. air flow	OFF	16 16	23 26	PCU	
XVFM2PWM	Heat exhaust fan control signal	Heat exhaust fan control	Max. air flow	OFF	4	22	PCU	
XVIDEO	Image signal	Image signal to the LSU	—	—	16	14	PCU	

*1: Multi paper feed tray vertical size detection

	Vertical size detection: Connector level				Paper size		
	M1SS1	M1SS2	M1SS3	M1SS4	AB series	Inch series	China series
Multi paper feed tray 1	M2SS1	M2SS2	M2SS3	M2SS4			
Multi paper feed tray 2							
1	L	L	H	L	B5	Extra	K16
2	H	L	H	L	A4 A5R	LT INVR	A4 A5R
3	H	L	L	L	B5R	EX-R	K16R
4	H	H	L	L	A4R	LTR	A4R
5	L	H	L	L	Foolscap	Extra	Foolscap
6	L	H	L	H	B4	LGL	K8
7	L	L	L	H	A3	WLT	
0	H	H	H	H	Tray not installed		

*2: Options

No.	CV_SIZE3	CV_SIZE2	CV_SIZE1	CV_SIZE0	Paper size
0	0	0	0	0	none
1	0	0	0	1	A3
2	0	0	1	0	A4
3	0	0	1	1	LT
4	0	1	0	0	B4
5	0	1	0	1	LG
6	0	1	1	0	WLT
7	0	1	1	1	INV
8	1	0	0	0	B5
9	1	0	0	1	Extra
10	1	0	1	0	A5
11	1	0	1	1	F4
12	1	1	0	0	A4R
13	1	1	0	1	B5R
14	1	1	1	0	LTR
15	1	1	1	1	A5R

Memo

This image shows a full page of white paper with horizontal dashed lines, typical of primary-ruled notebook paper. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Memo

[illegible]

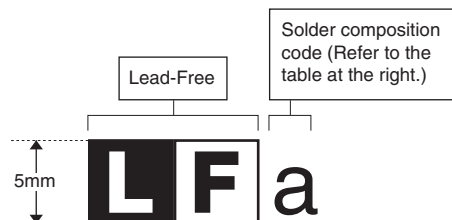
Memo

This image shows a full page of primary-ruled paper. It features multiple sets of horizontal dashed lines spaced evenly down the page, providing a guide for handwriting practice. The background is white, and there are no margins or other markings present.

LEAD-FREE SOLDER

The PWB's of this model employs lead-free solder. The "LF" marks indicated on the PWB's and the Service Manual mean "Lead-Free" solder. The alphabet following the LF mark shows the kind of lead-free solder.

Example:



<Solder composition code of lead-free solder>

Solder composition	Solder composition code
Sn-Ag-Cu	a
Sn-Ag-Bi Sn-Ag-Bi-Cu	b
Sn-Zn-Bi	z
Sn-In-Ag-Bi	i
Sn-Cu-Ni	n
Sn-Ag-Sb	s
Bi-Sn-Ag-P Bi-Sn-Ag	p

(1) NOTE FOR THE USE OF LEAD-FREE SOLDER THREAD

When repairing a lead-free solder PWB, use lead-free solder thread.

Never use conventional lead solder thread, which may cause a breakdown or an accident.

Since the melting point of lead-free solder thread is about 40°C higher than that of conventional lead solder thread, the use of the exclusive-use soldering iron is recommendable.

(2) NOTE FOR SOLDERING WORK

Since the melting point of lead-free solder is about 220°C, which is about 40°C higher than that of conventional lead solder, and its soldering capacity is inferior to conventional one, it is apt to keep the soldering iron in contact with the PWB for longer time. This may cause land separation or may exceed the heat-resistive temperature of components. Use enough care to separate the soldering iron from the PWB when completion of soldering is confirmed.

Since lead-free solder includes a greater quantity of tin, the iron tip may corrode easily. Turn ON/OFF the soldering iron power frequently.

If different-kind solder remains on the soldering iron tip, it is melted together with lead-free solder. To avoid this, clean the soldering iron tip after completion of soldering work.

If the soldering iron tip is discolored black during soldering work, clean and file the tip with steel wool or a fine filer.

CAUTION FOR BATTERY REPLACEMENT

(Danish)

ADVARSEL !

Lithiumbatteri – Eksplosionsfare ved fejlagtig håndtering.

Udskiftning må kun ske med batteri

af samme fabrikat og type.

Levér det brugte batteri tilbage til leverandoren.

(English)

Caution !

Danger of explosion if battery is incorrectly replaced.

Replace only with the same or equivalent type

recommended by the manufacturer.

Dispose of used batteries according to manufacturer's instructions.

(Finnish)

VAROITUS

Paristo voi räjähtää, jos se on virheellisesti asennettu.

Vaihda paristo ainoastaan laitevalmistajan suosittelemaan

tyyppiin. Hävitä käytetty paristo valmistajan ohjeiden

mukaisesti.

(French)

ATTENTION

Il y a danger d'explosion s' il y a remplacement incorrect
de la batterie. Remplacer uniquement avec une batterie du

même type ou d'un type équivalent recommandé par

le constructeur.

Mettre au rebut les batteries usagées conformément aux

instructions du fabricant.

(Swedish)

VARNING

Explosionsfara vid felaktigt batteribyte.

Använd samma batterityp eller en ekvivalent

typ som rekommenderas av apparattillverkaren.

Kassera använt batteri enligt fabrikantens

instruktion.

(German)

Achtung

Explosionsgefahr bei Verwendung inkorrektter Batterien.

Als Ersatzbatterien dürfen nur Batterien vom gleichen Typ oder

vom Hersteller empfohlene Batterien verwendet werden.

Entsorgung der gebrauchten Batterien nur nach den vom

Hersteller angegebenen Anweisungen.

CAUTION FOR BATTERY DISPOSAL

(For USA, CANADA)

"BATTERY DISPOSAL"

THIS PRODUCT CONTAINS A LITHIUM PRIMARY
(MANGANESE DIOXIDE) MEMORY BACK-UP BATTERY
THAT MUST BE DISPOSED OF PROPERLY. REMOVE THE
BATTERY FROM THE PRODUCT AND CONTACT YOUR
LOCAL ENVIRONMENTAL AGENCIES FOR INFORMATION
ON RECYCLING AND DISPOSAL OPTIONS.

"TRAITEMENT DES PILES USAGÉES"

CE PRODUIT CONTIENT UNE PILE DE SAUVEGARDE DE
MÉMOIRE LITHIUM PRIMAIRE (DIOXYDE DE MANGANESE)
QUI DOIT ÊTRE TRAITÉE CORRECTEMENT. ENLEVEZ LA
PILE DU PRODUIT ET PRENEZ CONTACT AVEC VOTRE
AGENCE ENVIRONNEMENTALE LOCALE POUR DES
INFORMATIONS SUR LES MÉTHODES DE RECYCLAGE ET
DE TRAITEMENT.

SHARP

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